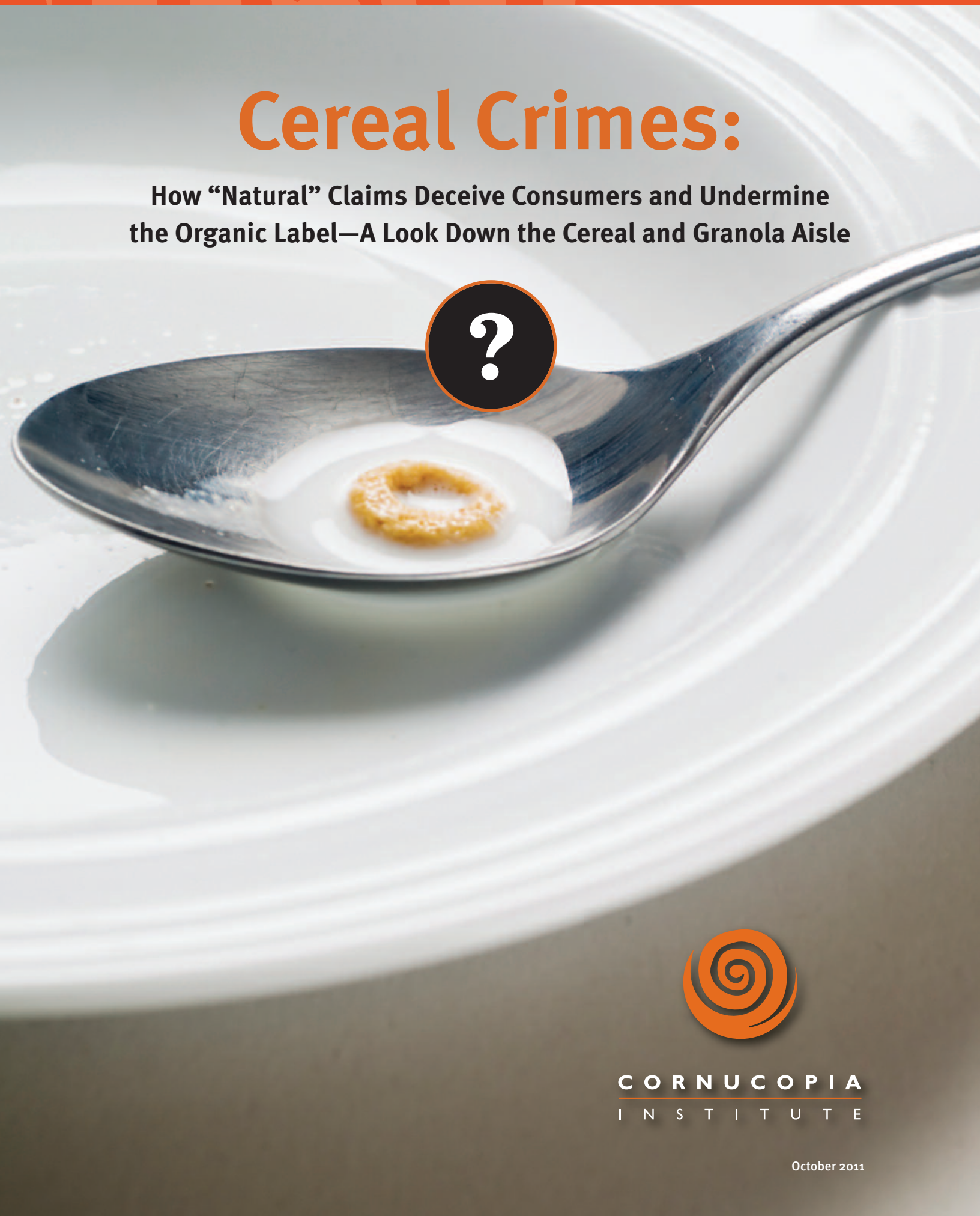
Cereal Crimes:

How "Natural" Claims Deceive Consumers and Undermine the Organic Label—A Look Down the Cereal and Granola Aisle



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The following staff members helped research, write, edit, and support this report and scorecard:

Charlotte Vallaeys, *Director of Farm and Food Policy, principal author*
Mark Kastel, *Senior Farm Policy Analyst*
Will Fantle, *Research Director*
Lynn Buske, *Research Assistant*

The following provided professional assistance:
Michana Buchman, copyediting
Jeremy Vossman, Papertree Design, www.papertreedesign.com, scorecard layout and web design

The Cornucopia Institute is dedicated to the fight for economic justice for the family-scale farming community. Through research, advocacy, and economic development, our goal is to empower farmers both politically and through marketplace initiatives.

The Cornucopia Institute
P.O. Box 126
Cornucopia, WI 54827
608-625-2042 voice
866-861-2214 fax
cultivate@cornucopia.org
www.cornucopia.org

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And the **thousands of family farmers, and their "urban allies,"** who fund our work with their generous donations.

The term "natural," in many instances, constitutes meaningless marketing hype promoted by corporate interests seeking to cash in on the consumer's desire for food produced in a genuinely healthy and sustainable manner.

Children are especially vulnerable to the harmful effects of synthetic pesticides and other inputs that are commonly used in "natural" products but prohibited in organics.

Federal law requires that organic food products be produced in ways that promote ecological sustainability, without the toxic inputs and genetically engineered ingredients that are common in the conventional food system. Increasingly, these organic products are forced to compete with products that claim to be "natural."

No legal requirements or restrictions exist for foods labeled "natural." The term, in many instances, constitutes meaningless marketing hype promoted by corporate interests seeking to cash in on the consumer's desire for food produced in a genuinely healthy and sustainable manner.

Unlike the organic label, no government agency, certification group or other independent entity defines the term "natural" on food packages or ensures that the claim has merit (other than meat, where the USDA has created some extremely modest requirements). Each corporation determines its own definition of the "natural" label.

Companies marketing "natural" products merely pay lip service to sustainability and eco-friendliness, while undercutting truly committed organic companies.

"Natural" generally is thought to mean "no artificial ingredients," including preservatives, but the farms and processing plants that produce ingredients for "natural" foods are not prohibited by law from using dangerous pesticides, genetically engineered crops, fumigants, solvents and toxic processing aids. These agricultural and manufacturing inputs are not required by law to be listed on ingredient labels.

This report explores the growing trend toward labeling conventional foods as "natural," focusing on breakfast cereal and granola, which are considered staples in many American households.

Since breakfast cereals are popular with children, it is especially important for parents to be aware of the differences between "natural" products, with conventional ingredients, and certified organic ones. Children are especially vulnerable to the harmful effects of synthetic pesticides and other inputs that are commonly used in "natural" products but prohibited in organics.

This report stresses that the terms "natural" and "organic" are not interchangeable, and an analysis of the differences shows why health-conscious and eco-conscious consumers should check carefully for the word "organic" before putting a box of cereal or bag of granola in their shopping cart.

Section I covers the legal requirements that distinguish organic claims from "natural" claims on food packages. Federal law requires that foods with the "organic" label be produced in ways that are substantially different from conventional food production. Independent USDA-accredited certifying agents ensure that organic producers follow these strict federal standards. No such legal requirement exists for "natural" labels on foods.

Since no federal law exists to define and standardize "natural" claims, each company comes up with its own self-serving definition.

Section II explores several company definitions of "natural," underscoring how vastly different they can be. For example, some companies go to the expense of procuring non-genetically engineered corn in "natural" products, while many "natural" breakfast cereals contain high levels of genetically engineered ingredients.

Yet despite the substantial legal difference between organic and "natural" labels on foods, polls show many consumers are unaware of these differences.

In **Section III,** results from various polls show that many consumers erroneously believe that the "natural" label has merit, such as signifying that the food is free of pesticides and genetically engineered ingredients.

Companies that market "natural" foods to eco-conscious and health-conscious consumers benefit from this widespread confusion between organic and "natural."

Section IV details various tactics that have been used by companies in their attempt to *appear* to be equivalent to organics, intentionally blurring the distinction to mislead shoppers.

To empower consumers who wish to support companies that are committed to organics, food safety and environmentally sustainable agriculture, **Section V** includes company profiles of organic and "natural" cereal and granola brands. This section lifts the veil on corporate owners of popular brands that sometimes actively hide their identity from their customers, perhaps knowing that consumers drawn to "natural" labels would not be interested in enriching multi-billion-dollar corporations.

Bear Naked®, owned by Kellogg Company, is an example: The name Kellogg appears nowhere on Bear Naked® packaging or its website. This section sheds light on corporate identities of popular organic and "natural" brands, ranging from small family businesses to multinational corporations.

Section VI explores price differences between organic and "natural" breakfast cereal and granola products. Although "natural" products are conventional (both in crop production and processing methods), they often are priced at a premium, closer to organic prices. In some cases, conventional, "natural" products are priced higher than their organic counterparts.

It appears that companies are engaged in clever "natural" marketing, profiting tremendously from consumer confusion about the difference between "natural" and organic and their willingness to pay a premium for pure, wholesome foods.

"Natural" marketing hurts certified organic farmers, organic competitors, and consumers who believe they are buying a truly natural product. **Section VII** discusses the effects of "natural" claims on the organic manufacturers whose certified organic products are forced to compete with empty "natural" claims.

Companies marketing "natural" products merely pay lip service to sustainability and eco-friendliness, while undercutting the truly committed companies that walk their talk by buying from farms that are managed

Some companies go to the expense of procuring non-genetically engineered corn in "natural" products, while many "natural" breakfast cereals contain high levels of genetically engineered ingredients.

organically, without synthetics, genetically engineered crops or toxic pesticides.

Many times "natural" companies invest in solar or wind energy to prove how "green" they are, rather than investing in organic, the safest and most environmentally friendly form of agriculture.

Section VIII discusses the effects of "natural" marketing on organic farmers. When food manufacturers shift their product ingredients from organic to "natural," it means they buy conventional ingredients from chemical-intensive farms instead of buying from organic farms. Organic farmers have received lower prices for their grains in recent years as cereal companies drop their demand for organic ingredients when they switch to "natural" labeling and conventional ingredients.

Section IX covers differences in environmental impacts of certified organic farming and conventional farming that produces ingredients for "natural" products.

As shown by poll data, many consumers believe that "natural" means the food is free of "unnatural" inputs, such as genetically engineered seed and pesticides. **Section X** explores various impacts on consumers of misleading "natural" labeling and consuming conventional ingredients.

Section X also provides test results showing that many "natural" cereal products, including Kashi, Mother's and Barbara's Bakery, are produced with genetically engineered organisms.

Section X also uses pesticide residue data from the United States Department of Agriculture to show that many conventional ingredients in "natural" breakfast cereal and granola products often contain pesticide residues. Aside from chemical residues emanating from crop production on the farm, "natural" ingredients are also not protected from toxic fumigants used on crops in storage, and toxic solvents used during processing. These inputs are strictly prohibited in organic production and processing.

Consumers should be aware that "natural" products contain conventional ingredients that were produced no differently from the ingredients in other typical processed foods. Only certified organic ingredients were verified as grown and processed without the use of genetically engineered organisms, toxic pesticides, fumigants and solvents.

This report is accompanied by an online scorecard with nearly 50 cereal and granola brands, available on the Cornucopia website (www.cornucopia.org). ■

Legal Difference between Organic and "Natural" Labels

The organic label is strictly regulated by the United States Department of Agriculture, while "natural" claims are mostly marketing hype without independent third-party certification or governmental oversight.

The United States Department of Agriculture (USDA) regulates and enforces organic food production and labeling, as required by an act of Congress (the Organic Foods Production Act of 1990). The National Organic Program at the USDA regulates the organic industry and enforces organic labeling laws.

An expert citizen panel, the National Organic Standards Board, advises the Secretary of Agriculture on organic rulemaking and policy. When the organic standards change in any way, the USDA must (as required by law) do so in a public and transparent manner and allow citizens to provide input on any proposed changes to the organic standards.

Consumers' interest in pure and wholesome foods without synthetics and toxic residues, and their desire to foster a sustainable environment for family farmers, continues to drive the organic industry boom. In 2010, organic sales grew an enviable 7.7%, despite high unemployment and a deep recession, while sales of non-organic food essentially were stagnant.[1]

No federal law or regulations exist regarding "natural" labeling of foods, such as breakfast cereal. Individual companies determine their own set of "natural" standards,[2] with no public input, third-party certification, or government oversight.

When determining their "natural" standards, companies will consider their profitability. Environmental concerns are unlikely to weigh heavily, if at all, in this profitability equation. If the company is a publicly traded corporation, such as Kellogg Company (Kashi® and Bear Naked®) or Pepsico (Mother's® and Quaker Oats®), their primary legal responsibility is to increase profits for shareholders.

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Criteria for "natural" labels are made meaningful only insofar as they achieve the corporation's legal responsibility of increasing profit—the companies seek to appeal to health-conscious and eco-conscious shoppers only up to the point where doing so is advantageous to their profit margins. They are therefore unlikely to make real sacrifices when setting their definition of "natural."

Therefore, corporations are not likely to pay higher prices for ingredients used in a "natural" product. They seek ways to charge higher prices to consumers while cutting their costs, and "natural" products are a perfect solution. They can market "natural" products as if they were equivalent, even similar, to organic products, without having to pay higher prices for superior organic ingredients. ■

Company Definitions of "Natural"

Corporate "natural" definitions vary widely. Generally, "natural" means the absence of artificial ingredients, commonly referencing preservatives, but does not signify that the ingredients are grown and processed in ways that avoid such "unnatural" inputs as synthetic pesticides and genetically engineered organisms. Various companies' definitions of "natural" highlight its inferiority to the organic label.

The Hain Celestial Group, which owns the cereal brands Arrowhead Mills® and Health Valley®, issued a document titled "The ABC's of Natural" in 2009. The guide lists synthetic ingredients that are not included in their "natural" products—none of these ingredients would be allowed in organic foods.[3] Conspicuously missing from "The ABC's of Natural" are synthetic and toxic pesticides, herbicides and fumigants.

Weetabix/Barbara's Bakery® defines "natural" on its website: "All natural means choosing high-quality ingredients to provide optimum nutrition and taste. It means no refined sugar, hydrogenated oils, artificial food additives, flavors or preservatives." Weetabix/Barbara's Bakery® fails to mention that "all natural" does not mean the absence of toxic pesticides and other synthetic inputs in the farms and processing plants that produce the "high-quality ingredients." Barbara's Bakery's® definition of "natural" also does not mean the absence of genetically engineered ingredients.

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Most companies do not share detailed standards for "natural" foods with the public. Kashi® and Bear Naked®, for example, both owned by Kellogg Company, would likely be uncomfortable sharing with their customers that their "natural" foods may contain hexane-extracted and genetically engineered soy ingredients.

On August 31, 2011, a class action lawsuit was filed against Kellogg/Kashi® for allegedly misleading consumers with its "natural" claims. One Kashi® product in particular, GoLean® Shakes, is composed almost entirely of synthetic and unnaturally processed ingredients, according to the plaintiff.

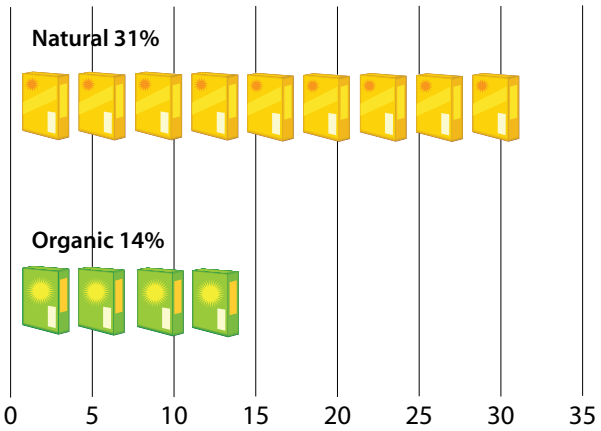
This contrasts sharply with certified organic products, labeled according to transparent, federally regulated standards. Organic standards are developed with public input, and all foods that carry the word "organic" on packaging or labels must conform to the same standards. ■

Polls Show Consumer Confusion

Consumers are confused about organic and "natural" labels on foods, too often believing that "natural" claims imply the absence of pesticides and genetically engineered organisms. Recent public opinion poll results, conducted by various research firms, confirm this.

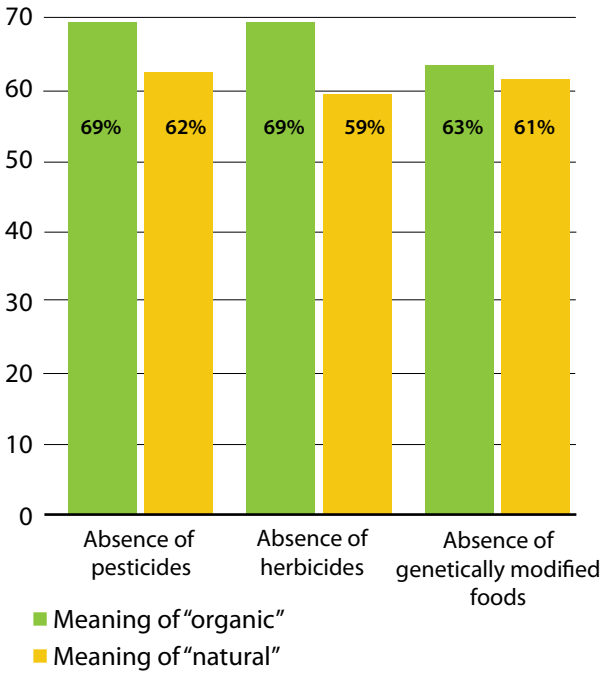
According to a 2009 report by Mintel, a leading market research company, one-third (33%) of survey respondents trust the term "natural" on labels, and nearly half (45%) trust the term "organic." However, roughly 30% of respondents say they did not know if they could trust either term.[4] Too many consumers are putting too much trust in the unregulated "natural" term while too many consumers are unnecessarily wary of the trustworthy organic label. ■

Most desirable eco-friendly product label claim



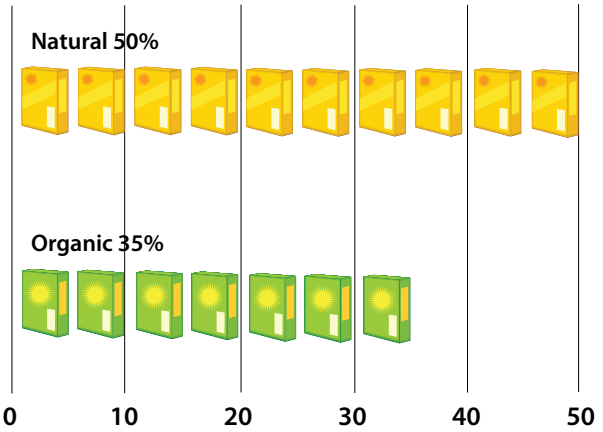
According to a survey[5] of 1006 consumers by The Shelton Group, a Tennessee-based research firm, 31% of respondents said "100% natural" is the most desirable eco-friendly product label claim, compared to 14% who chose "100% organic."

Meaning of "organic" and "natural"



A 2010 poll by the Hartman Group,[7] a Washington-based research firm, found a majority of respondents erroneously believed the term "natural" implied "absence of pesticides," "absence of herbicides," and "absence of genetically modified foods."

Consumers value the term "natural" over "organic."



Two consumer polls by San Francisco-based research firm Context Marketing, released in 2009 and 2010, showed that more consumers value the term "natural" than "organic." While 50% of polled consumers said the "natural" label on food was either important or very important to them, only 35% believed "organic" carried the same value.[6]

Companies' Marketing Techniques Intentionally Blur Line Between Natural and Organic

Companies that market "natural" foods to eco-conscious and health-conscious consumers benefit from widespread confusion between organic and "natural." This section details various techniques that have been used by companies in their attempt to appear to be equivalent to organics, intentionally blurring the distinction to mislead shoppers.

Bait-and-switch

Some companies that started out organic, and built consumer loyalty as organic brands, have switched to non-organic "natural" ingredients and labeling. Peace Cereal® is an example of "bait-and-switch." In 2008, the company that owned the Peace Cereal® brand, Golden Temple, switched from organic to cheaper conventional ingredients, without lowering its prices.

At the time of the switch, the company also did not change its package design, other than eliminating the USDA Organic seal and the word "organic" from its cereal boxes. Most egregiously, it did not change the barcode on the cereal boxes. Many retailers and shoppers were unaware of the switch until The Cornucopia Institute conducted an investigation in late 2010.

Some retailers continued to use "organic" in-store shelf tags for Peace Cereal®—until Cornucopia publicized its findings showing widespread mistakes. Today, Peace Cereal® is owned by Hearthside Food Solutions, which changed its logo to include "All Natural," appearing right below the "Peace Cereal®" name. Hearthside/Peace Cereal® continues to charge customers as much as or more than many certified organic competitors.

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Promoting "natural"

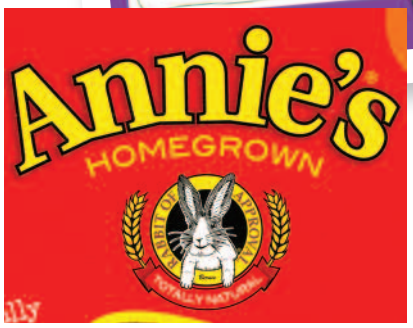
Companies also can blur the line between "natural" and organic with promotional materials for their "natural" labels. They fail to mention that ingredients excluded from the "natural" foods—such as high-fructose corn syrup, hydrogenated oils, and artificial flavors—are prohibited in organic foods. Consumers may believe, therefore, that "natural" foods offer something special, when in truth organic foods offer all those benefits and much more.

This is a common practice by companies that sell both organic and natural products. For instance, the Hain Celestial Group, the corporation that owns brands such as Arrowhead Mills® and Health Valley®, promotes the natural label and stresses that "natural" means the absence of artificial ingredients. However, by not promoting organic along with "natural," Hain Celestial's educational materials easily could leave consumers with the impression that only "natural" products will ensure avoidance of synthetic ingredients, unaware that choosing organic is a more honest option delivering as much and more.

Advertisements tout "organic" benefits for natural brands

In advertisements, some companies tout their brand's organic products without mentioning that many of their products are not certified organic. This leads organic consumers to associate the brand with the organic label, when in truth the brand comprises many more non-organic, "natural" products.

For example, *The Washington Post* in May 2011 carried a 12-page advertising section, paid for by the Organic Trade Association, which aimed to educate readers about the benefits of organics. One advertisement was for Annie's Homegrown products, showing the "Annie's Homegrown Organic" logo. Yet in the breakfast cereal aisle, only *one of five cereal* products by Annie's Homegrown is, in fact, certified organic; 80% of its cereal options are conventional.



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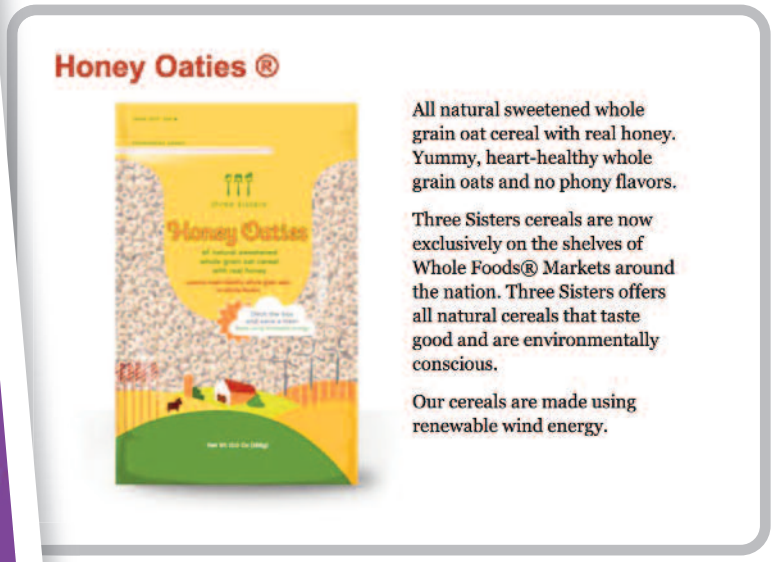
Claiming to be "sustainable" without being organic

Some companies like to tout their brands as "sustainable," without being organic. Three Sisters® is made by Malt-O-Meal and is available exclusively in Whole Foods Markets. It appears the exact same cereal is available in other supermarkets under the Mom's Best Naturals brand name. The Three Sisters® website claims that its cereal is "sustainable" and "environmentally conscious."

Unless the product is organic, which Three Sisters® is not (with the exception of some organic oatmeal options), these are claims that have not been verified independently. Moreover, the claim usually refers to one aspect of the cereal's production, such as the use of wind energy to power the manufacturing plant, or the reduction of packaging. However, the ingredients were produced on conventional farms with energy-intensive practices, such as petroleum-based fertilizers and pesticides.



The Three Sisters® website claims that its cereal is "sustainable" and "environmentally conscious." Unless the product is organic, which Three Sisters® is not, the ingredients were produced on conventional farms with energy-intensive practices, such as petroleum-based fertilizers and pesticides.

"Organic and natural"

Perhaps the most common tactic to confuse consumers is using the phrase "natural and organic"—instead of "natural or organic"—to describe a brand's ingredients. Saying "natural and organic" suggests that the two terms are equally meaningful and valid, and that all such products contain organic ingredients. For example, Annie's Homegrown states on its website that "Annie's® uses only simple natural and organic ingredients," as if the term "organic" is just another way to describe "natural" and vice versa.

Most important, this language creates the impression that all products contain organic ingredients. Since the majority of Annie's® ingredients in the breakfast cereal aisle are conventional, it would be more appropriate to state that "Annie's® uses conventional or organic ingredients."

Meanwhile, companies that are committed to organics, such as Nature's Path and Grandy Oats, do not tout the term "natural" in marketing materials, nor do they use the terms "natural" and "organic" interchangeably. They promote the one and only term that has true meaning from an ecological, sustainability and environmental health standpoint: organic. ■

Rapid growth of "natural" foods industry

The organic market has been growing rapidly for years, reflecting increased consumer awareness of the importance of pure and sustainably produced food. The strategy of multinational corporations to profit from this consumer interest with their "natural" marketing appears to be successful, according to a report by the research firm SPINS.

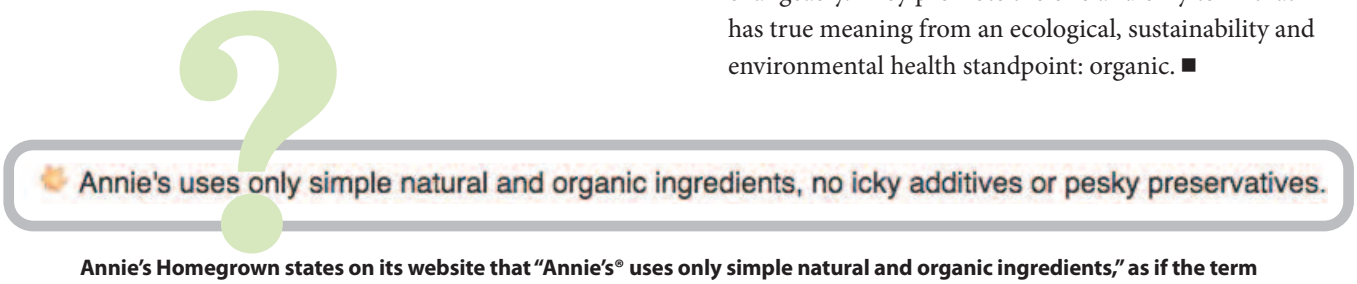
According to research quoted in a Canadian Organic Trade Organization (COTA) white paper, the growth rate of "natural" products began to exceed the growth rate of organics in December 2008.[8]

According to the COTA report, companies shifted toward cheaper "natural" options during the recession, allowing them to market their products to the same concerned consumer target audience, while using cheaper conventional ingredients that they could source at conventional prices.[9]

Beware the granola in the green boxes

Some manufacturers continue to use artificial and synthetic ingredients in their granola, and instead of putting the word "natural" on the box, recently have changed the packaging to give the *impression* of being "natural." For example, Kellogg's® brand granola does not use the term "natural" but states "WHOLE GRAIN" in green letters on an earth-colored box, with a green leaf prominently displayed, which gives it a "natural" look.

Kellogg's® granola's ingredients are anything but wholesome and natural: "whole oats, brown sugar, whole grain wheat, corn syrup, rice, almonds, modified corn starch, partially hydrogenated cottonseed and/or soybean oil, high-fructose corn syrup, cinnamon, salt, nonfat dry milk, natural and artificial flavors, polyglycerol esters of mono- and diglycerides, malt flavor, niacinamide, zinc oxide, guar gum, sodium ascorbate and ascorbic acid (vitamin C), reduced iron, pyridoxine hydrochloride (vitamin B6), riboflavin (vitamin B2), vitamin A palmitate, folic acid, thiamin hydrochloride (vitamin B1), BHT (preservative), vitamin B12 and vitamin D."



Annie's Homegrown states on its website that "Annie's® uses only simple natural and organic ingredients," as if the term "organic" is just another way to describe "natural" and vice versa. Eighty percent of Annie's® cereal offerings are conventional.

Company Profiles—Who Is Behind the Brands?

When a multinational corporation owns a brand that represents itself as "natural," the corporate owner will rarely be listed on the cereal or granola's packaging. For example, consumers likely do not realize that a package of Bear Naked® "100% pure and natural" granola is manufactured by the giant cereal manufacturer Kellogg Company. This section includes profiles of the brand owners—ranging from family businesses to multibillion-dollar corporations—of popular premium-priced (natural and organic) cereal and granola brands.

Grandy Oats

Grandy Oats is an independently owned, 100% organic granola company founded in 1979 and based in Brownfield, Maine. With 15 employees, the company makes granola in a 100-year-old dairy barn that was renovated and converted, meeting hygienic standards, to a granola bakery. Its granola products are available primarily on the East Coast, but also in some stores as far west as Minnesota.

Grandy Oats uses only organic ingredients "because we believe we are making our world a better place by using food that was grown in a sustainable way," says co-owner Nat Peirce.

Go Raw®—Freeland Foods

Freeland Foods makes Go Raw® granola. The company, based in Mountain View, California, is dedicated to making only 100% organic foods that are sprouted and dehydrated, creating products that truly are minimally processed and raw. The company's commitment to sustainability is evidenced not only by its use of 100% organic ingredients, but also by its solar-powered production facility, and its switch to biodegradable packaging.

Nature's Path

Nature's Path is a family-owned company based in Richmond, British Columbia, Canada. The company was founded in 1985 by Arran and Ratana Stephens and still is owned independently today. Nature's Path products are available nationwide.

Every product offered by Nature's Path is certified organic. The company operates three production facilities—in British Columbia, Washington state, and Wisconsin. Nature's Path is thought to be the largest manufacturer of name-brand certified organic breakfast cereals in the country.

Nature's Path is a great example of a company that has not sacrificed its commitment to organics as it grew in size. With more than 400 employees, the company remains independent and 100% committed to organics.

The company is organic because "Growing organic, healthy foods in a sustainable way is our passion, the cornerstone of our family company," states cofounder Arran Stephens.

Lydia's Organics

Lydia's Organics, an independent company based in California, was founded in 2001. Its organic granola is made by hand in Marin County and is available nationwide. Ingredients such as buckwheat and sunflower seeds are sprouted to release enzymes and make them more digestible, then tossed with other ingredients and dehydrated, making a raw product. In addition to sourcing exclusively from organic farmers, Lydia's Organics sources locally when possible.

The company is 100% organic because "we are committed to healing the planet and to providing food that is truly healthy," says founder Lydia Kindheart.

Kaia Foods

Kaia Foods, based in Oakland, California, has been offering "minimally processed" granola since 2007. Its granola, available in stores nationwide, is made by sprouting, mixing and dehydrating organic ingredients at low temperatures so they remain raw. The company offers only certified organic products.

Founder Nick Kelley says, "We are committed to organics because it is healthier for the planet, healthier for farm workers, and healthier for consumers."

Ambrosial Organics

The founder of Ambrosial Organics, Anastasia Makoulis, says she could not find an acceptable granola in stores for her children after moving to the United States from Greece in the 1980s. So she created her own recipe, using only organic ingredients, and founded Ambrosial Organics in 2000. "Our customers and their families deserve the same quality as my family," she states. The company is based in Brooklyn, New York, and its organic granola is available on the East Coast and in select stores in the Midwest and South.

Ambrosial Organics' founder also states: "Besides the health benefits, we firmly believe that good food begins with environmentally sustainable farming—that is, organic farming."

Erewhon®—Attune Foods

The Erewhon® brand is owned by Attune Foods, which also owns conventional brands such as Uncle Sam® and Skinner's.® Attune Foods is a San Francisco-based company. All Erewhon products are certified organic, with the exception of one which is 70% organic.

Cascadian Farm®—General Mills

Since the year 2000, the Cascadian Farm® brand has been owned by General Mills, a public corporation that is the country's second-largest breakfast cereal company. (General Mills had $6.5 billion in retail sales for breakfast cereal alone in 2009.) Instead of using the name of the corporate owner, General Mills, on its packaging, it uses the name of a subsidiary, "Small Planet Foods."

Kashi®—Kellogg Company

Kashi® is owned by Kellogg Company, the largest breakfast cereal maker in the country. (Kellogg has annual sales of $12 billion, half in the cereal category.)[11] Kellogg acquired the Kashi® brand in 2000, but the Kashi® website continues to paint a picture of being a small company.

"We are a small (after 25 years, still fewer than 70 of us) band of passionate people,"[12] it says, despite being owned by the nation's largest cereal manufacturer. Kellogg does not include its name on Kashi® packaging.

Peace Cereal®—Hearthside Food Solutions

The Peace Cereal® brand is owned by Hearthside Food Solutions, which in turn is owned by Wind Point Partners, a Chicago-based private equity firm. Hearthside primarily produces cereal and granola for other brands (including store brands) in one of its 12 manufacturing plants. Until 2008, all Peace Cereal® products were certified organic or labeled "made with organic ingredients" (minimum 70% organic). Today, none are.

Mom's Best® and Three Sisters®—Malt-O-Meal
Several brands like Mom's Best,® Three Sisters® (available exclusively in Whole Foods Markets), Bear River Valley® and Isabel's Way® are owned by Malt-O-Meal. Despite being popular in stores such as Whole Foods, these brands offer very few organic options.[10]

Mother's—Pepsico
Like Quaker Oats,® the Mother's® brand is not organic and is owned by Pepsico. The overwhelming majority of Pepsico's business is in conventional snack foods, including Lay's® chips and Tostitos®. Pepsico's net revenue in 2009 was $43 billion.[13]

Back to Nature®—Kraft
Back to Nature® is one of 61 brand names owned by the public corporation Kraft Foods, which had nearly $50 billion in revenue in 2010.[14] Back to Nature granola comes in nine varieties—only one is certified organic.

Bear Naked®—Kellogg Company
Bear Naked,® like Kashi,® is owned by Kellogg Company, the largest breakfast cereal maker and one of the largest food corporations in the country. Bear Naked® never was organic, but Kellogg markets Bear Naked® as "100% pure and natural," even though Kellogg has no policy against the use of toxic pesticides, hexane, and genetically engineered ingredients. Kellogg never is mentioned on the Bear Naked® website, which attempts to convince shoppers that buying Bear Naked® products means they are supporting a small, independent granola company.

Barbara's Bakery®—Weetabix/Lion Capital
Barbara's Bakery® is owned by Weetabix Food Co., a British cereal maker, which in turn is owned by the investment firm Lion Capital.[15] Barbara's Bakery® organic cereal choices dropped from 55% to 20% from 2007 to 2011. Weetabix/Barbara's Bakery® uses genetically engineered ingredients in its non-organic, "natural" breakfast cereals.

Annie's Homegrown
Solera Capital, a New York City-based private equity firm, acquired a majority interest in Annie's Homegrown in 2002. When Annie's Homegrown introduced breakfast cereal in 2007—in addition to its popular "Mac and Cheese" products—all Annie's® cereal products were at least 70% organic. Today, only one in five Annie's® cereal products is certified organic; the rest do not contain any organic ingredients.

More information about each company can be found in the Scorecard available on The Cornucopia Institute website, www.cornucopia.org.

From organic to "natural"

Companies that once offered exclusively organic or mostly organic cereal that are downgrading to "natural"

Brand	Percentage Organic or "made with organic" cereal/granola products in 2007	Percentage Organic or "made with organic" cereal/granola products in 2011
Annie's Homegrown®	100%	20%
Barbara's Bakery®	60%	20%
Peace Cereal®	100%	0%

**Based on products offered wholesale from the UNFI catalog, 2007 and 2011*

Companies that remain committed to organics

Brand	Percentage Organic or "made with organic" cereal/granola products in 2007	Percentage Organic or "made with organic" cereal/granola products in 2011
Food for Life®	100%	100%
Grandy Oats®	100%	100%
Nature's Path®	100%	100%

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Price Comparisons

While one might expect conventional, "natural" products to be priced at least slightly *lower* than organic products, this is not always the case. In fact, "natural" products—using conventional ingredients—are often priced *higher* than equivalent organic products, suggesting that some companies are taking advantage of consumer confusion regarding the difference between the meaningless natural label and certified organic claims.

Our analysis of prices shows that some "natural" products are often priced unreasonably high, closer to organic prices than conventional. Some in the industry have suggested, quite generously, that certain companies with both organic and "natural" products have increased the price of their conventional "natural" offerings to be able to lower the price of their organic products.We have not found this to be the case. In fact, the companies that consistently offered the lowest prices for organic foods are those that are 100% organic.

Our analysis of prices shows that some "natural" products are often priced unreasonably high, closer to organic prices than conventional.

The price comparisons that follow, unless noted otherwise, are based on prices from the United Natural Foods International's (UNFI) Greenwood warehouse catalog for January-April 2011 (serving the Midwest). UNFI is the largest wholesale distributor for natural and organic foods, from which retailers such as food cooperatives and Whole Foods Market stores buy their products.Wholesale prices are a better indicator of the prices that the manufacturer charges on a routine basis, and all prices cited below are wholesale prices (except when noted otherwise).

It is important to note that retailers do not always pay the wholesale prices listed in the catalog, for reasons such as volume discounts and preferential pricing for large-scale retailers. Wholesale prices also do not always reflect the retail prices found on store shelves. While wholesale prices are typically accompanied by a "suggested retail price," retailers ultimately determine their final margin and retail price.

Differences in wholesale prices often translate to differences in retail prices. For example, the wholesale price for conventional Peace Cereal® is higher than the wholesale price for several equivalent organic products. The wholesale price differences translate to retail price differences. In The Wedge, a food co-op in Minneapolis, Minnesota, conventional Raisin Bran by Peace Cereal® is more expensive than two organic brands of raisin bran. Peace Cereal® costs $0.36 per ounce, while both organic Flax and Raisin Bran by Nature's Path® and organic Raisin Bran by Erewhon® cost $0.32 per ounce.

This unexpected finding in price differences—with organic cereal often priced as much as 25% lower than conventional "natural" cereal—is especially striking when comparing natural food store prices with prices in conventional supermarkets. For example, in a Whole Foods Market in the Boston area, Nature's Path® unsweetened organic corn puffs are offered at $1.99 for 6 ounces; Kix® conventional ("natural") crispy corn puffs cost $3.69 for 8.2 ounces in a conventional supermarket (Stop 'n Shop) in the same town.That's 33 cents for an ounce of organically grown corn puffs at Whole Foods, and 45 cents per ounce for "natural," genetically engineered, pesticide-sprayed corn puffs at Stop 'n Shop.

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Multigrain flakes price comparison[17]

Brand	Product	Corporate Owner	Organic Status of Cereal	Package Size	Price per Ounce
Nature's Path®	Heritage Flakes	Nature's Path	Organic	13.5 oz.	$0.26
Food for Life – "Ezekiel 4:9"®	Original Cereal	Food for Life	Organic	16 oz.	$0.27
Kashi®	7 Whole Grain Flakes	Kellogg Company	Conventional	14.4 oz.	$0.28
Health Valley®	Amaranth Flakes	Hain Celestial	Organic	12.65 oz.	$0.28
Arrowhead Mills®	Kamut Flakes	Hain Celestial	Organic	12 oz.	$0.31
Uncle Sam®	Great Multigrains	Attune Foods	Conventional	10 oz.	$0.31 **($$$)**

Comparing wholesale prices for multigrain and specialty grain flakes (such as amaranth and kamut) shows that the two least expensive products are offered by committed organic companies, Nature's Path and Food for Life. Kashi's® 7-grain cereal, made with non-organic grains by the multinational corporation Kellogg Company but disguised as an independent-sounding "natural" brand, is priced higher than two certified organic cereal products.

Raisin bran price comparison[17]

Brand	Product	Parent Company	Organic Status of Cereal	Price per Ounce
Mom's Best®	Raisin Bran	Malt-O-Meal	Conventional	$0.11
Erewhon®	Raisin Bran	Attune Foods	Organic	$0.22
Nature's Path®	Flax and Raisin Bran	Nature's Path	Organic	$0.25
Cascadian Farm®	Raisin Bran	General Mills	Organic	$0.29
Food for Life®	Cinnamon Raisin Bran	Food for Life	Organic	$0.29
Peace Cereal®	Raisin Bran	Hearthside Food Solutions	Conventional	$0.29 **($$$)**

A comparison of wholesale prices for "raisin bran" cereal shows that Peace Cereal®—a conventional product from a company that does not offer any organic options under this brand—is priced exactly the same, on a per-ounce basis, as several organic raisin bran products (Food for Life® and Cascadian Farm®). But even more surprisingly, the conventional ("natural") Peace Cereal® raisin bran ($0.29 per ounce) is priced *higher* than organic raisin bran by two organic brands, Erewhon® ($0.22 per ounce) and Nature's Path® ($0.25 per ounce).

Granola price comparison (from least to most expensive)[18]

Brand	Corporate Owner	Organic or Conventional	"Natural" Claim?	Price per Ounce
365® Organic	Whole Foods Market	Organic	Organic	$0.26
Cascadian Farm®	General Mills	Organic	Organic	$0.29
Back to Nature®	Kraft Foods/Philip Morris	Conventional	"100% Natural"	$0.30
New England Naturals®	Independent company	Organic	Organic	$0.31
Whole Foods Bulk	Whole Foods Market	Conventional	No claim	$0.31
Grandy Oats®	Independent company	Organic	Organic	$0.38
Nature's Path®	Independent company	Organic	Organic	$0.39
Boxford Bakehouse®	Independent company	Conventional	No claim	$0.42
Yogi®	Hearthside Food Solutions	Conventional	"All Natural"	$0.48
Ambrosial®	Independent company	Organic	Organic	$0.50
Bear Naked®	Kellogg Company	Conventional	"100% Pure and Natural"	$0.50
Galaxy®	Independent company	Conventional	"All Natural"	$0.50
Udi's®	Independent company	Conventional	"Natural"	$0.50
Vermont Maple®	Independent company	Conventional	"All Natural"	$0.50
Vermont Bakeshop®	Independent company	Conventional	No claim	$0.54
Lizi's®	Independent company (UK)	Conventional	"100% Natural"	$0.57
Kaia Foods®	Independent company	Organic	Organic	$0.75
Two Moms in the Raw®	Independent company	Organic	Organic	$1.12

A Boston-area Whole Foods store carried 18 brands of packaged granola in the spring of 2011. While one would expect that the least expensive granola products would be conventional and the most expensive would be organic, that was not the case. The *least expensive* is the Whole Foods private label (365 Organic) *organic* granola, at $0.26 per ounce.

Minimal processing: a matter of definition

Bear Naked® says its ingredients are "Bearly Processed."

Kaia Foods states, "No baking, frying, bleaching, or weird processing steps."

These two claims of minimal processing may lead shoppers to believe that the products are processed in roughly identical ways. Yet the difference between the two products is enormous.

For example, Bear Naked® Peak® Protein granola contains soy protein isolate, which is produced by immersing whole soybeans in a solution containing n-hexane and other chemicals.

For Kellogg/Bear Naked® to claim that its ingredients—including hexane-extracted soy protein isolate—are barely processed is simply dishonest. Using highly explosive, polluting petrochemical solvents to process soybeans is not consistent with being barely processed.

Raw granola brands, including Kaia Foods®, Go Raw®, and Lydia's Organics® even avoid baking their ingredients, in order to minimize "processing." Nutritionists contend that minimally processed foods retain more of the natural nutritional value.

Since the organic label prohibits highly processed ingredients such as solvent-extracted oils, and artificial ingredients, it offers the best guarantee that marketing claims of "minimal processing" are honest.

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Organic products cheaper than "natural"

In stores around the country, examples abound of "natural" products priced higher than equivalent certified organic products. The term "natural" is mostly meaningless marketing hype, while organic standards prohibit the use of toxic pesticides, fumigants, solvents and genetically engineered ingredients. This could easily be interpreted as price gouging by companies taking advantage of consumer interest in wholesome, healthy and pure foods.

The Wedge Community Co-op, Minneapolis MN

Erewhon®	Raisin Bran	Organic	$0.32/oz.
Peace Cereal®	Raisin Bran	Conventional	$0.36/oz.

Price differential: 11%

Whole Foods Market, Chicago IL

Nature's Path®	Whole O's (cheerio type)	Organic	$0.38/oz.
Annie's®	Cinnamon Bunnies (cheerio type)	Conventional	$0.49/oz.

Price differential: 22%

Whole Foods Market, Bedford MA

Grandy Oats®	Granola	Organic	$0.38/oz.
Bear Naked®	Granola	Conventional	$0.50/oz.

Price differential: 24%

Dominicks, Chicago IL

Kashi®	Shredded Wheat Squares	Organic	$0.22/oz.
Barbara's Bakery®	Shredded Wheat	Conventional	$0.34/oz.

Price differential: 35%

Festival Foods, Eau Claire WI

Erewhon®	Brown Rice Crisp (Gluten Free)	Organic	$0.46/oz.
Barbara's Bakery®	Brown Rice Crisp (Gluten Free)	Conventional	$0.48/oz.

Price differential: 5%

Meijer's, Merriville IN

Cascadian Farm®	Granola	Organic	$0.25/oz.
Back to Nature®	Granola	Conventional	$0.32/oz.

Price differential: 22%

Just Local Food Coop, Eau Claire WI

Envirokidz® (Nature's Path)	Koala Crisp™ (with cocoa)	Organic	$0.54/oz.
Mothers®	Cocoa Bumpers®	Conventional	$0.58/oz.

Price differential: 7%

Unfair Competition and Its Effects on Organic Manufacturers

Committed organic companies such as Grandy Oats, Nature's Path, and Lydia's Organics must compete with agribusiness giants Kellogg, Kraft, and Pepsico and their misleading "natural" claims on conventional products. When companies overcharge consumers for "natural" products, they take business away from reputable companies that are supporting organic farmers.

On some store shelves, Bear Naked's® conventional "natural" granola appears side by side with Grandy Oats' 100% organic granola. Wholesale prices and retail prices in various stores reveal that Grandy Oats, a relatively small, 100% organic, independent company in Maine, offers its organic granola at lower prices than agribusiness giant Kellogg Company's Bear Naked® conventional granola.[19] The presumably tremendous increased profit margin by Kellogg, which enjoys both lower costs of raw materials for its conventional ingredients and economies of scale in manufacturing and distribution, could easily be interpreted as *price gouging*.

Several other organic granola makers offer their products at prices lower than Kellogg Company's conventional Bear Naked®, including Nature's Path, New England Naturals and Cascadian Farm® (General Mills). In Whole Foods Markets, the 365® Organic brand granola is also less expensive than Kellogg Company's Bear Naked® conventional product.

Grandy Oats, a relatively small, 100% organic, independent company in Maine, offers its organic granola at lower prices than agribusiness giant Kellogg Company's Bear Naked® conventional granola.

Kellogg Company perhaps is counting on attractive packaging and consumer confusion about the lack of meaning in "100% pure and natural" claims. This apparently is a successful strategy for Kellogg—increasing its profit margins—but it's a strategy that misleads consumers and leaves organic manufacturers, and the organic family farmers from whom they buy, at a severe competitive disadvantage in the marketplace.

Companies marketing "natural" products merely pay lip service to sustainability and eco-friendliness, while undercutting the truly committed companies that walk their talk by buying from farms that are managed organically, without synthetics and pesticides, non-therapeutic antibiotics and hormones, and sewage sludge.

Another outrageous example of "natural" brands overcharging consumers is Peace Cereal®. When the company switched from organic to non-organic ingredients, one might have expected that it would adjust its wholesale prices accordingly. In fact, the wholesale prices actually *increased* 10% since switching to non-organic ingredients. That 10% increase is slightly higher than the inflation rate in retail food prices, according to the Consumer Price Index.

Committed organic companies also have to compete with "natural" claims by companies such as Annie's Homegrown and Weetabix/Barbara's Bakery® that are reducing their organic cereal options. These companies, too, are blurring the lines between organic and "natural," apparently to ride the coattails of their established organic reputations while cashing in with cheaper conventional ingredients.

Again, it should be noted that organic food is relatively expensive to grow and produce, making this price inversion paradoxical. ■

Multigrain cereal with fruit price comparison, in The Wedge co-op grocery in Minneapolis

(February 2011)

Brand	Product	Parent Company	Organic or Conventional?	Price per Ounce
Nature's Path®	Optimum Blueberry Cinnamon	Nature's Path Foods, Inc.	Organic	$0.31
Barbara's Bakery®	Blueberry Shredded Minis	Weetabix Ltd./Lion Capital	Conventional	$0.33
Dorset Cereals®	FruitNut Fiber	Dorset Cereals Ltd.	Conventional	$0.35
Peace Cereal®	Apple Cinnamon	Hearthside Food Solutions	Conventional	$0.45
Kashi®	Strawberry Fields	Kellogg Company	Organic	$0.46
Erewhon®	Crispy Rice with (conventional) Berries	Attune Foods	70% organic	$0.49
Ezekiel 4:9®	Cinnamon Raisin	Food for Life	Organic	$0.50
Lydia's Organics®	Apricot Sun	Lydia's Organics	Organic	$0.56

The price gap: Corporate profit

Organic products can have higher prices for several reasons:

- Growing crops without synthetic fertilizers and toxic pesticides is more labor-intensive and therefore more expensive.
- Organic farms tend to be smaller and more diversified, without aggregate markets, so farmers cannot take advantage of some economies of scale.
- Conventional farmers are not third-party certified and do not incur the same certification costs as organic farmers. This third-party certification system is designed to ensure that farmers and processors follow the strict standards that prohibit a wide range of ecologically destructive practices, synthetic inputs, and toxic chemicals. Third-party certification includes annual visits from a certifying agent as well as possible surprise visits and spot testing, to ensure compliance with the organic standards.
- Organic farmers and handlers must develop and implement an Organic System Plan, a detailed description of the practices used by the farmer or handler to produce organic foods in ways that do not rely on toxic and synthetic inputs.
- Unlike conventional commodity crops, such as corn and soy, which are popular ingredients in breakfast cereal, organic crops do not qualify for some federal subsidy programs, or they qualify at a lower level.

On the flip side, there is only one reason "natural" products should cost more than conventional: The companies can get away with it. They gladly mislead the consumer and pocket the extra profit.

Impact on Organic Farmers

When food manufacturers shift their product ingredients from organic to "natural," it means they buy conventional ingredients from chemical-intensive farms instead of buying from organic farmers. As a result, organic farmers receive lower prices for their grains. For the first time since the commercialization of organics, conventional farm production is probably more profitable than organic.

Since 2008, multiple manufacturers have switched a considerable share of their products from organic to "natural." This is a reversal of a decades-long trend. Simultaneously, organic grain farmers have noticed a drop in demand for organic crops, accompanied by a drop in prices for these crops.

Many farmers who invested heavily in converting their land to organic production (a minimum three-year process) have converted back to conventional. If demand for organic crops had remained high, many more acres may have converted to or remained organic but now are back under chemical-intensive management.

Prior to 2008 and the economic recession, organic farmers reportedly received favorable price premiums for their organically grown food-grade grain, ranging from 30% to100% over conventional grain prices in a steadily growing marketplace. Today, producers report that demand for their organic grain has declined substantially, accompanied by unstable, fluctuating prices.

These reports are substantiated by the United States Department of Agriculture. In May 2011, the USDA's *Livestock and Grain Market News* reported that there was "light demand" for organic grain, and that "some organic farming operations are reportedly considering scaling back production in light of the current corn prices paired with increasing transportation cost."[20]

Until December 2007, the USDA reported "good demand" for organic grain. In 2007, 100% of Annie's Homegrown® cereal offerings were organic, 100% of Peace Cereal® offerings were organic, 60% of Barbara's Bakery® offerings were either organic or "made with organic grain." By 2008, these companies started eliminating some organic offerings, switching to conventional commodities, and the USDA reported that demand for organic grain was reduced from "good" to "moderate."

Since 2008, multiple manufacturers have switched a considerable share of their products from organic to "natural." Simultaneously, organic grain farmers have noticed a drop in demand for organic crops, accompanied by a drop in prices for these crops. Many farmers who invested heavily in converting their land to organic production have converted back to conventional.

By October 2008, the USDA reported that prices were "weaker" with "light demand."[21] The USDA continued to describe demand as "light" from 2008 through the time of this report's publication in 2011, when Peace Cereal's® organic options are at 0%, and both Barbara's Bakery's® and Annie's Homegrown's® organic options have been reduced to 20%. While there are certainly other factors to be considered, such as weather and higher conventional prices that lured some organic farmers back to conventional, the role of decreased demand for organic cereal grain by companies that switched from organic to "natural" cannot be underestimated.

According to some industry experts, up to 20% of organic grain acreage may have been lost due to this light demand for organic grain and unstable prices and unknown marketing potential—land that has been converted back to conventional, chemical-intensive agriculture when farmers did not receive the price premium they needed to continue to farm organically. Breakfast cereal manufacturers that have switched their products from organic to "natural" (conventional ingredients) are undoubtedly contributing to this drop in demand, which has led to the loss of thousands of acres of organic farmland.

And yet, while these companies no longer pay a price premium to farmers for organic ingredients, they continue to charge price premiums to consumers in the marketplace. ■

Breakfast cereal manufacturers that have switched their products from organic to "natural" (conventional ingredients) are undoubtedly contributing to the drop in demand for organic grains, which has led to the loss of thousands of acres of organic farmland.

How much goes back to the farmer?

How many of your dollars (or cents) for a box of organic corn flakes actually go back to the farmer? Not many.

Farmers currently are paid anywhere from $0.125 to $0.17 for every pound of organic corn. In stores, consumers are paying $3.36 for a pound of store-brand organic corn flakes, and up to $6.56 per pound for a brand-name box. That means a farmer gets anywhere from 1.9% to 5% of what the consumer pays—2 to 5 cents for every consumer dollar spent.

3 cents to the farmer

44 cents to the manufacturer (including broker, mill, factory)

20 cents to the distributor.

33 cents to the retailer.

Approximate figures—percentages will vary depending on the manufacturer, distributor and retailer.

Impact on the Environment

Consumers are drawn to organic foods not only for personal health reasons but also for the environmental benefits of organic farming. Since "natural" products contain conventionally produced ingredients, there are few, if any, environmental benefits from "natural" products.

When millions of barrels of oil spilled into the Gulf of Mexico after BP's Deepwater Horizon exploded in April 2010, many were outraged at the environmental damage it caused. Yet, a "dead zone" as large as the state of New Jersey already existed in the Gulf of Mexico, due to synthetic fertilizers from chemical farmers draining into the Mississippi River watershed and the Gulf.[22] Synthetic fertilizers that caused this dead zone are strictly prohibited in organic agriculture.

Instead of using synthetic fertilizers, organic farmers focus on building soil fertility using natural means, such as crop rotation and composted livestock manure. Organic farmers also are prohibited from using municipal sewage sludge, which is allowed and used by conventional farmers producing crops for "natural" foods (sewage sludge is commonly contaminated with heavy metals and toxic chemicals). While petroleum-based fertilizers provide quick, short-term boosts to plant growth, organic farmers aim to nurture the long-term health of the soil, to ensure that the land will remain fertile for the next generation.

To manage pests, organic farmers seek a balanced farm system, using crop rotation, beneficial insects and birds that eat pest insects, and hands-on management instead of resorting to toxic pesticides. Pesticides that kill "pest" insects are known to be harmful to nontarget species such as bees, butterflies, birds and other wildlife. Pesticides used on a farm are not easily contained, and inevitably contaminate aquifers, streams and rivers, eventually finding their way into drinking water resources.

Thousands of cases of acute pesticide poisoning among farmers and farmworkers on conventional farms have been documented, and all easily would have been prevented with organic farming practices.[23] Studies suggest that farming communities have higher rates of leukemia, non-Hodgkin lymphoma, multiple myeloma, and soft tissue sarcoma, as well as cancers of the skin, lip, stomach, brain, and prostate.[24] According to the National Cancer Institute, these higher cancer rates "may be related to exposures that are common in their work environments" such as pesticide exposure.[25] Research also links the use of common herbicides to higher rates of birth defects in farming communities.[26]

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Organic management of food production is the most sustainable way to feed the world. Buying "natural" products means supporting the environmentally destructive industrial model of agriculture.

Organic farming also benefits the environment in terms of global climate change, since organic farmers use fewer fossil-fuel-based inputs, and healthy organic soil sequesters carbon. According to the Rodale Institute, a Pennsylvania-based organic research and advocacy organization, converting 50% of U.S. agricultural farmlands to organic production would sequester 240 billion pounds of carbon per year, the equivalent of removing up to 42 million cars from the road.[27]

In 2008, an intergovernmental panel, supported by organizations such as the World Bank and the United Nations, reported that organic management of food production is the most sustainable way to feed the world.[28]

Consumers who buy certified organic foods support an ecologically sustainable food production system, which means they support wildlife conservation, climate change mitigation, and the sustainability of our farmland. They also protect the farmers and farmworkers (and their families) who produce our food. Buying "natural" products, on the other hand, means supporting the environmentally destructive industrial model of agriculture. ■

Impact on Consumers

In some cases, the "natural" option is slightly cheaper than an organic option, leaving consumers to ponder whether the extra price for organic is worth it. The answer is an unequivocal "yes," since the organic label is a shopper's best guarantee that the food was produced without toxic pesticides, genetically engineered ingredients, carcinogenic fumigants and chemical solvents.

Genetically engineered ingredients

Several ingredients that are commonly found in breakfast cereal and granola—corn, soybeans and canola (rapeseed)—exist in genetically engineered (GE) varieties that are commercially grown on a wide scale in the United States. The organic standards strictly prohibit the use of these and all other GE crops and ingredients.[29]

Genetically engineered corn, soybean and canola (rapeseed) plants were created through biotechnology techniques that introduced foreign genes of other species, including bacteria and viruses, into the DNA sequence of the crop. One common genetically engineered variety allows the plants to be resistant to patented herbicides (most commonly Monsanto's Roundup®), therefore allowing the farmers to douse the crops with herbicides. According to research by the U.S. Geological Service, part of the U.S. Department of Interior, glyphosate, the active ingredient in RoundUp®, was frequently detected in surface waters, rain and air near farm fields. The government scientists also found that the degradation product of glyphosate, aminomethylphosphonic acid (AMPA), which has a longer environmental lifetime, was frequently detected in streams and rain.[30]

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Genetically engineered corn, soybean and canola (rapeseed) plants were created through biotechnology techniques that introduced foreign genes of other species, including bacteria and viruses, into the DNA sequence of the crop. Serious questions regarding the safety of these genetically engineered foods exist.

Another common GE variety has genes of a bacterial insecticide inserted into the genetic sequence of the crops, which essentially merges the plant and the pesticide into one organism. Serious questions regarding the safety of these genetically engineered foods exist.

Oat cereal or "O's"

Brand	Parent Company	Organic or Conventional?	Price per Ounce
Kashi® Heart to Heart®	Kellogg Company	Conventional	$0.32
Nature's Path®	Independent company	Organic	$0.38
Cascadian Farm®	General Mills	Organic	$0.55

In this case, the conventional "natural" option is marginally cheaper than the least expensive organic option — but is the "natural" cereal really a better deal? Given the use of pesticides and other toxic inputs in "natural" production, which are prohibited in organics, organic is definitely worth the extra cost.

What do the organic standards say about genetically engineered organisms?

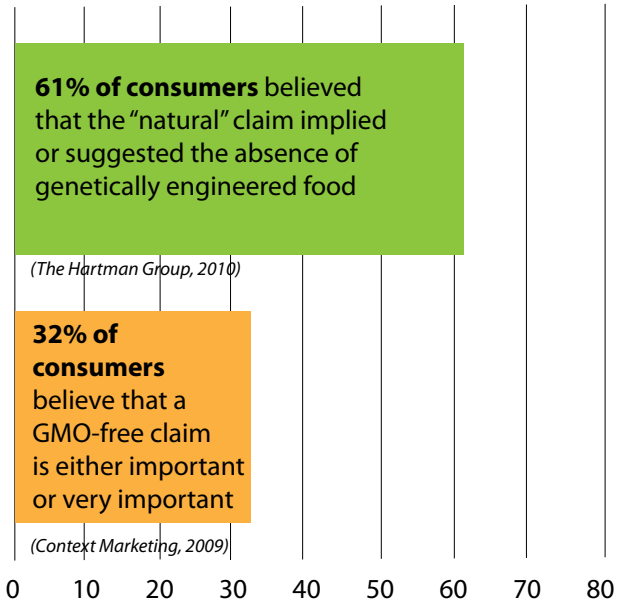
Federal regulations (7 CFR 205.105) define genetic engineering as an "excluded method" for organic production.[31] In other words, the use of genetically engineered seed is strictly prohibited in organic food production, and organic producers must have verifiable practices in place to avoid contact with genetically engineered organisms.

No such prohibition against genetically engineered organisms exists in "natural" standards, especially since every company determines its own definition for "natural" foods.

Consumer expectation regarding the use of GE ingredients in "natural" foods

Research shows that a majority of consumers expect "natural" foods to be free of genetically engineered ingredients, and many also consider the absence of genetically modified organisms (GMOs) to be important.

The 2010 Hartman Group poll found that 61% of consumers erroneously believed that the "natural" claim implied or suggested the absence of genetically engineered foods.[32] According to the 2010 Context Marketing poll, 32% of consumers believe that a GMO-free claim is either important or very important.[33]



Cornucopia tests "natural" cereal for GMOs

To determine whether various brands of non-organic "natural" breakfast cereal are made with genetically engineered ingredients, The Cornucopia Institute sent samples of breakfast cereal to an accredited and highly reputable GMO testing laboratory. Samples were tested for the exact percentage of genetically engineered corn or soybeans, using the most sophisticated and accurate tests commercially available.

The results were stunning. Several breakfast cereal manufacturers that market their foods as "natural," even some that claim to avoid genetically engineered ingredients and are enrolled in the Non-GMO Project, contained high levels of genetically engineered ingredients.

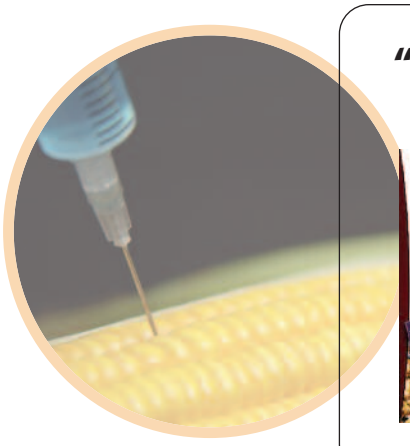
GMO test results

Numerous "natural" products were indeed contaminated with high levels of GE ingredients, sometimes as high as 100%: **Kashi® GoLean®, Mother's® Bumpers®, Nutritious Living® Hi-Lo®, and General Mills Kix®**.[34]

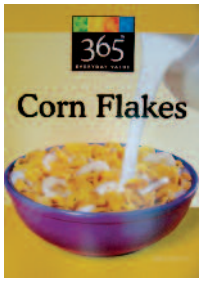
For non-organic "natural" products making "non-GMO" claims, results showed that these claims cannot always be trusted. While **Peace Cereal®** and **Annie's Homegrown®** were indeed free of significant levels of GE ingredients,[35] **Barbara's Bakery® Puffins®** and **Whole Foods' 365® Corn Flakes**, which are both enrolled in the Non-GMO Project contained more than 50% GE corn.

On the other hand, as a control, The Cornucopia Institute also tested Nature's Path® certified organic corn flakes, which were free of significant GE contamination (>0.5%).

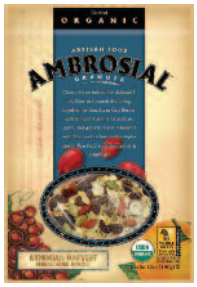
These test results underscore the importance of the organic label, which assures consumers that the manufacturer uses only non-genetically engineered ingredients. More extensive testing is necessary to draw conclusions regarding the truthfulness of "non-GMO" claims, but these preliminary results point to several problems. First, manufacturers can claim that they avoid purchasing genetically engineered ingredients, but these claims may be meaningless unless they are verified by a third party, such as an organic certifying agent.



"Natural" cereal made with GMOs[36]



GMOs prohibited in organics



In addition, many of the most reputable organic companies have developed their own testing protocols to ensure the purity of their products.

Furthermore, the Non-GMO Project, which "enrolls" products before it verifies them as being non-GMO, may give consumers a false sense of security. Our test results reveal that several "enrolled" products were in fact made with GE ingredients.

Concerns with genetically engineered foods

Genetically engineered (GE) foods have not been adequately tested for safety. The only human feeding study ever conducted was cut short due to unexpected findings—that GE proteins do not digest in the gut as the biotech industry insisted they would.

Dr. Lisa Weasel, Ph.D., a molecular biologist and professor of biology at Portland State University in Oregon, author of *Food Fray: Inside the Controversy over Genetically Modified Food*, states: "Safety testing is very limited. Who's doing the safety test? When Monsanto wanted to introduce rBGH (recombinant bovine growth hormone), it commissioned the University of Vermont to study the impacts. Monsanto did not like the results, so the data was suppressed. In the end activists forced the results to be made public."[37]

Safety testing is done or commissioned primarily by companies with a vested interest in the outcome. It is difficult for independent researchers to perform safety tests, for several reasons. Dr. Judy Carman, director of the Institute of Health and Environmental Research in Australia, describes the reasons in an interview with the *Organic and Non-GMO Report.* First, obtaining samples of genetically engineered seed for testing purposes is nearly impossible, since anyone buying genetically engineered seed has to sign a technology licensing

Mice fed genetically engineered corn had fewer litters, fewer total offspring, and more females with no offspring than mice fed conventional corn.

agreement stating that no research will be conducted with the seed. Dr. Carman also explains that "scientists who try to research health impacts of [genetically engineered] food get harassed and intimidated by people with vested interests in [genetic engineering] technology.[38]

The Institute for Responsible Technology, a non-profit group, notes: "Before the FDA decided to allow [genetically engineered organisms] into food without labeling, FDA scientists had repeatedly warned that [genetically engineered] foods can create unpredictable, hard-to-detect side effects, including allergies, toxins, new diseases, and nutritional problems. They urged long-term safety studies, but were ignored."[39]

Recent studies raise serious concerns regarding the safety of genetically engineered foods.

An overview of safety studies on genetically engineered (GE) foods, published in 2011 in *Environment International*[40] finds roughly an equal split between the number of peer-reviewed studies that conclude there are no risks, and those that conclude there are health risks. The vast majority of studies finding no risks were sponsored by the biotech industry or associates.

Canadian researchers reported in *Reproductive Toxicology*, published in 2011, that the blood of 93% of pregnant women and 80% of their umbilical cord blood samples contained a pesticide implanted in GE corn by the biotech company Monsanto, though digestion was supposed to remove it from the body (according to Monsanto-funded research). "Given the potential toxicity of these environmental pollutants and the fragility of the fetus, more studies are needed," the scientists wrote.[41]

A 2009 study published in the *International Journal of Biological Sciences,* performed by scientists from the Committee for Independent Research and Information on Genetic Engineering (CRIIGEN) and Universities of Caen and Rouen in France, found several genetically engineered varieties of corn damaged the kidneys and liver of test animals. Research also revealed damage to

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Canadian researchers reported in *Reproductive Toxicology*, published in 2011, that the blood of 93% of pregnant women and 80% of their umbilical cord blood samples contained a pesticide implanted in GE corn by the biotech company Monsanto, though digestion was supposed to remove it from the body (according to Monsanto-funded research).

the heart, adrenal glands, spleen and haemotopoietic system (responsible for the formation of blood cellular components). The researchers concluded: "These data highlight signs of toxicity, possibly due to the new pesticides specific to each genetically modified corn."[42]

In another study, commissioned by the Austrian health ministry in 2008, researchers found that mice fed genetically engineered corn had fewer litters, fewer total offspring, and more females with no offspring than mice fed conventional corn. The researchers concluded: "The trial showed time-related negative reproductive effects of the genetically modified corn under the given experimental conditions."[43]

A study published in the *Journal of Agricultural and Food Chemistry* in 2008 suggests that genetically engineered corn, Monsanto's MON 810, damaged the intestines and peripheral immune systems of lab animals.[44] The testing performed by Cornucopia on various cereals reveals that several "natural" cereal brands contain these genetically engineered ingredients.

Studies suggest that genetically engineered corn damaged the intestines and peripheral immune systems of lab animals.

Pesticides in the fields

According to research by the Natural Marketing Institute, a market research firm, two-thirds of U.S. consumers believe foods today are less safe to eat because of chemicals used during growing and processing of foods.[45] Given this widespread interest in avoiding food-borne chemicals, it is increasingly important for consumers to realize that buying "natural" foods does little, if anything, to avoid synthetic inputs and toxins used on the farms and inside the manufacturing plants.

What do the organic standards say about pesticide use?

Certified organic foods are grown in accordance with strict standards prohibiting the use of synthetic pesticides (7 CFR 205.105). Toxic pesticides commonly sprayed on conventional fields and crops are prohibited in organics.

The term "natural" or "all-natural" on food packages is meaningless in terms of pesticide residues. "Natural" foods legally can be grown with the same pesticides used on other conventional foods.

Consumer expectation regarding the use of pesticides in "natural" foods

According to a poll by the research firm Context Marketing, 60% of surveyed consumers thought the claim "no pesticides" was either important (28%) or very important (32%) to them.[46]

The 2010 Hartman Group poll found that 62% of consumers erroneously believed that the "natural" claim implied or suggested the absence of pesticides.

Concerns about pesticides in "natural"

A specific class of pesticides, organophosphates (OP), are chemicals commonly used in American agriculture. These pesticides, including chlorpyrifos and malathion, were developed from World War II-era nerve gas and are designed to be toxic to the neurological systems of target animals. They are deadly to insects but also

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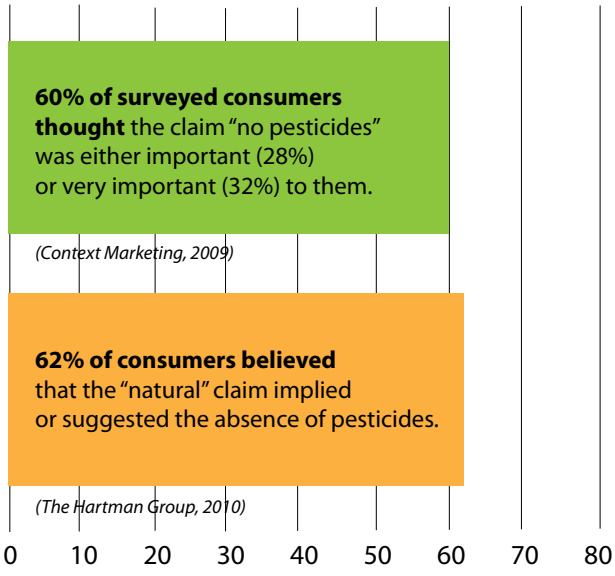
"Natural" foods legally can be grown with the same pesticides used on other conventional foods.



damaging to humans—with fetuses and children especially at risk.

All organophosphate pesticides are prohibited in organic food production. All organophosphate pesticides are allowed and commonly used to grow foods destined for "natural" breakfast cereal and granola.

Chlorpyrifos, one of the most highly toxic pesticides to humans, is sprayed on 18% of sweet corn acreage,[47] according to the USDA's NASS Pesticide Info database.

Given its toxicity, the Natural Resource Defense Council and Pesticide Action Network of North America filed a petition with the EPA in September 2007 to ban chlorpyrifos. The agency has not responded. Chlorpyrifos continues to be sprayed on non-organic farmland, and companies use crops sprayed with chlorpyrifos, such as corn, in "natural" corn flakes and chips, and other foods.

The USDA's Pesticide Data Program (PDP), which tests pesticide residues on common foods, found residues of chlorpyrifos on 17.8% of corn grain samples and 14.5% of soy grain samples.

The USDA found residues of [the pesticide] chlorpyrifos on 17.8% of corn grain samples and 14.5% of soy grain samples.

Malathion is another commonly used organophosphate. It also is a neurotoxic pesticide that is strictly prohibited in organic production.

The USDA's PDP found residues of malathion on more than 60% of wheat grain samples, nearly half of wheat flour samples, one third of corn grain samples, and 5% of oat and soybean grain samples.

Buying organic: avoiding neurotoxic pesticide residues

In 2001, researchers studying pesticide residues in the urine of 110 children discovered that all of the children in their research group had measurable levels of organophosphate (OP) metabolites, except for one child. When they questioned this child's parents, the researchers discovered that the parents bought exclusively organic produce.[48]

Two years later, researchers published a study showing that consumption of organic fruits, vegetables, and juice can reduce children's exposure levels from above to below the U.S. Environmental Protection Agency's guidelines for pesticide residues. They found that pesticide concentrations in urine samples were approximately six times higher in children consuming non-organic diets than children on organic diets. The researchers wrote that "Consumption of organic produce appears to provide a relatively simple way for parents to reduce their children's exposure to OP pesticides."[49]

"Consumption of organic produce appears to provide a relatively simple way for parents to reduce their children's exposure to OP pesticides."

– Curl et al. *Environmental Health Perspectives* (2003)

In another study, median concentrations of metabolites for the neurotoxic pesticides malathion and chlorpyrifos decreased to "nondetectable" levels immediately after study participants switched to organic diets. Levels of these OP metabolites remained nondetectable until non-organic diets were reintroduced.[50]

These repeated findings—that organic diets significantly reduce children's exposure to neurotoxic pesticides—are important particularly because these pesticides can damage developing neurological systems. A 2006 study published in the journal *Pediatrics* found that organophosphate exposure during pregnancy was associated with increased risk of pervasive developmental disorders, as well as delays in mental development at 2 to 3 years of age.[51] Several studies also found that postnatal organophosphate exposure has been associated with behavioral problems, poorer short-term memory and motor skills, and longer reaction times in children.[52 53 54]

Recently, organophosphate exposure in children has been linked to attention deficit hyperactivity disorder (ADHD). Researchers at the University of Montreal and Harvard University analyzed the levels of pesticide residues in the urine of more than 1,139

children ages 8 to 15, and found that "children with higher urinary levels of organophosphate metabolites were more likely to meet the diagnostic criteria for ADHD."[55] For each 10-fold increase in OP metabolite levels, the risk of ADHD increased 55% to 72%, depending on the criteria used for case identification.

Organophosphate residues in breakfast cereals

According to data collected by the USDA's Pesticide Data Program, detectable concentrations of organophosphate pesticides were found on samples of most ingredients of popular breakfast cereals, including oats, wheat,

Residues of chlorpyrifos methyl were detected on samples of conventional, non-organic wheat, oats and barley. One sample of wheat grain tested by the USDA contained residue levels more than five times the acute Population Adjusted Dose (PAD) for children.

Blueberry cereal and organophosphate pesticides [56,57]

Nature's Path® Blueberry Cinnamon Optimum® Cereal	Barbara's Bakery® Shredded Minis Blueberry Burst	Kashi® Heart to Heart® Blueberry Cereal
Organic	Conventional	Conventional
$0.31 per ounce ($)	$0.33 per ounce ($$)	$0.37 per ounce ($$$)
Blueberries	**Blueberries**	**Blueberries**
no pesticides *	phosmet	phosmet
	carbaryl	carbaryl
	azinphos methyl	azinphos methyl
	malathion	malathion
Oats	**Oats**	**Oats**
no pesticides *	malathion	malathion
Wheat	**Wheat**	**Wheat**
no pesticides *	malathion	malathion
	chlorpyrifos methyl	chlorpyrifos methyl
	chlorpyrifos	chlorpyrifos

Corn flakes and organophosphate pesticides [58]

365 Corn Flakes (13 oz.)	Nature's Path (26.5 oz.)	Erewhon (11 oz.)
Conventional	Organic	Organic
$0.21 per ounce ($)	$0.25 per ounce ($$)	$0.41 per ounce ($$$)
Corn	**Corn**	**Corn**
malathion	no pesticides *	no pesticides *
chlorpyrifos		
pirimiphos methyl		

** Federal standards prohibit the use of synthetic, toxic and potentially harmful pesticides in organic production.*

soybeans and corn, as well as additional ingredients in many packaged cereals, such as raisins, almonds, blueberries, honey and cranberries.

"Children with higher urinary levels of organophosphate metabolites were more likely to meet the diagnostic criteria for ADHD."

– Bouchard et al. *Pediatrics* (2010)

Pesticides/fumigation of cereal ingredients in storage

Pesticide use in conventional agriculture is not limited to the farm fields. Harvested crops, such as corn, oats and wheat, can be sprayed regularly with a toxic pesticide, euphemistically called a "grain protectant" by its manufacturers, to kill insect pests during storage.

Conventional farmers who store their crops are instructed to spray the grain as it moves into storage. Grain protectants include chlorpyrifos methyl and pirimiphos methyl.

Residues of these pesticides showed up on conventional corn, oats and wheat sampled by the USDA.[59] As with other synthetic substances, these pesticides are strictly prohibited in organic food production.

Chlorpyrifos methyl

If a storage bin of grain is infested with insect pests, conventional producers may treat the grain with a toxic fumigant. Such toxic fumigation is prohibited in organic food production. Consequently, organic farmers typically sell their grain much sooner after harvest, or they may treat their products with benign, natural compounds, such as diatomaceous earth.

One fumigant popular with conventional producers is Bayer CropScience's Storcide II®, whose active ingredient is the toxin chlorpyrifos methyl. Fumigation with chlorpyrifos methyl is so highly toxic and hazardous to human health that its manufacturer recommends that only specially trained applicators perform the procedure.

Residues of chlorpyrifos methyl were detected on samples of conventional, non-organic wheat, oats and barley.[60] One sample of wheat grain tested by the USDA contained residue levels more than five times the acute Population Adjusted Dose (PAD) for children.[61]

With 16.7% of non-organic wheat grain samples and 20% of non-organic wheat flour samples containing residues, buying "natural" wheat cereal for children is playing the odds with pesticide exposures linked to neurological disorders.

Sulfuryl fluoride

Sulfuryl fluoride is a toxic gas used as a "post-harvest fumigant" to kill pests in storage. It is sold under the trade name ProFume® by Dow AgroSciences.

According to its manual, sites to be fumigated include non-organic bakeries, food production facilities, mills, warehouses, etc.[62] Foods that can be fumigated include almonds, oats, wheat, corn, rice, barley, peanuts and raisins. These foods can be offered to consumers as soon as 24 hours after having been fumigated with this toxic gas. The manual advises that commodities be "actively aerated a minimum of 24 hours prior to offering to consumers."[63]

The most recent EPA reregistration review stated under the "Human Risk Assessment" section that sulfuryl fluoride "poses no human dietary risks since no food- or feed-related uses are registered and dietary exposure is not anticipated.[64] In the Applicator Manual for ProFume®, however, Dow Agrosciences states that "sulfuryl fluoride is a toxic gas."

Sulfuryl fluoride is a toxic gas used as a "post-harvest fumigant" to kill pests in storage. Fumigated foods such as almonds, oats, wheat, corn,rice, barley, peanuts and raisins can be offered to consumers as soon as 24 hours after having been fumigated with this toxic gas.

It appears that EPA approved this pesticide in 2004 without adequate safety testing. In response to a petition by environmental and consumer interest groups[65] pointing out deleterious impacts on human health from fluoride residues of this fumigant, the EPA proposed on January 19, 2011 to phase out the use of sulfuryl fluoride.[66] Until the EPA takes definitive action, which could still take months or years, the only sure way for consumers to protect themselves from exposure to this toxic fumigant is to buy organic.

Consumer groups are concerned with the use of sulfuryl fluoride as a post-harvest fumigant because of high levels of fluoride residues on foods. The Fluoride Action Network writes: "The end result, according to estimates released by EPA in January 2006, is that the use of sulfuryl fluoride as a food fumigant could become the second largest daily source of fluoride exposure in the US. Morever, because there are no labeling requirements for foods fumigated with sulfuryl fluoride, the use of sulfuryl fluoride will make it more difficult for health-conscious people to limit, or monitor, their fluoride intake."[67]

One reason EPA may have approved this pesticide without adequate safety testing is that Dow needed a replacement for methyl bromide, an ozone-depleting fungicide regulated under the Montreal Protocol. In a rush to phase out ozone-depleting methyl bromide, the EPA may have traded one problematic pesticide for another.

Like methyl bromide, sulfuryl fluoride also appears to have serious environmental impacts. Researchers at the University of California at Irvine recently discovered that sulfuryl fluoride is a greenhouse gas that is 4,000 times more efficient at trapping heat than carbon dioxide. The research team that discovered the harmful greenhouse gas properties of sulfuryl fluoride includes Nobel laureate F. Sherwood Rowland, who discovered that chlorofluorocarbons (CFCs) in aerosol cans and other products damage the ozone layer.

"Sulfuryl fluoride has a long enough lifetime in the atmosphere that we cannot just close our eyes," said Sulbaek Andersen, a postdoctoral researcher in the Rowland-Blake laboratory and lead author of the study. "The level in the atmosphere is rising fast, and it doesn't seem to disappear very quickly."[68]

Quaker Oats® states that it is an "all-natural" product. Pepsico/Quaker Oats® manages a processing plant that emits roughly 19,000 pounds of sulfuryl fluoride yearly. Sulfuryl fluoride is a toxic greenhouse gas used to treat crops like oats in storage.

According to the researchers, the climate impact of using sulfuryl fluoride to fumigate foods is equivalent to the carbon dioxide emitted from about 1 million vehicles. Ironically, Dow AgroSciences, the chemical company responsible for sulfuryl fluoride, touts itself for winning "prestigious environmental honors" for its role in developing and marketing sulfuryl fluoride.

Sulfuryl fluoride is used by the manufacturers of "natural" breakfast cereals, such as Quaker Oats. According to EPA data, the Golden Grain facility owned by Quaker Oats, in Bridgeview, Ill., emitted 19,000 pounds of sulfuryl fluoride in 2009.[69] The package for Quaker Oats states "100% Natural," which, according to the website, means "these products do not contain any artificial or synthetic ingredients, just oats." Yet EPA data reveals that facilities owned by Quaker Oats fumigate routinely with this toxic gas.

Propylene oxide

Conventional raw nuts, such as almonds, can be fumigated routinely with propylene oxide, a toxic gas that is strictly prohibited in organics.

The Environmental Protection Agency (EPA) recognizes it as a carcinogen and as a suspected toxicant of the liver and the gastrointestinal, immune, developmental and respiratory systems. According to the EPA, short-term contact with propylene oxide has caused eye and respiratory tract irritation, skin irritation and necrosis, depressed central nervous systems, and inflammatory lesions in the nose and lungs.[70]

As with pesticides and other toxic chemicals used

Conventional raw nuts, such as almonds, are fumigated routinely with propylene oxide, a toxic gas that is strictly prohibited in organics.

during non-organic food production, consumers have no way of knowing whether the raw nuts in their cereal or granola were treated with propylene oxide. The only guarantee that this toxic chemical was not used is the organic label.

Ethylene oxide

Spices, including cinnamon, can be fumigated with ethylene oxide gas. The Department of Health and Human Services has determined that ethylene oxide may reasonably be anticipated to be a human carcinogen.[71] The U.S. Department of Labor warns that "acute exposures to ethylene oxide gas may result in respiratory irritation and lung injury, headache, nausea, vomiting, diarrhea, shortness of breath, and cyanosis. Chronic exposure has been associated with the occurrence of cancer, reproductive effects, mutagenic changes, neurotoxicity, and sensitization."[72]

When ethylene oxide reacts with naturally occurring chlorine ions present in foods (e.g. spices), it forms the toxic and mutagenic substance ethylene chlorohydrin.[73] This derivative of ethylene oxide also is toxic and carcinogenic, and is sufficiently involatile and nonreactive chemically to be persistent under food-processing conditions.[74] According to a study published in the *Journal of Food Science,* "Concentrations of up to about 1,000 parts per million were found in whole spices and ground spice mixtures after commercial fumigation with ethylene oxide."[75]

Conventional Fumigants Allowed	Organic No Fumigants Allowed
propylene oxide	Organic standards strictly prohibit toxic fumigants
sulfuryl fluoride	Organic standards strictly prohibit toxic fumigants

Processing cereal ingredients: petrochemical solvents

The organic prohibition against toxic and synthetic chemicals is not limited to farm fields and storage bins. Strict standards apply also in the processing facility, where corn kernels are transformed into corn flakes, and soybeans are transformed into soy grits or soy protein for granola and breakfast cereal. Toxic solvents, such as hexane, are prohibited in organic processing.

Hexane is a chemical—a byproduct of gasoline refining—that is commonly used in non-organic food processing. Factories that process foods with the use of n-hexane are regulated by the Environmental Protection Agency, since the chemical is a hazardous air pollutant.[76]

Hexane is a highly explosive solvent used to separate a crop's oil from its protein and fiber. It is used to make ingredients such as corn and soy oil, soy grits and soy protein isolate. If you see these ingredients listed on product labels, other than certified organic products, they almost certainly were made with hexane.

Several Bear Naked® and Kashi® products contain hexane-extracted soy protein. The "hexane bath" that the soybeans are immersed in consists of more than 50% n-hexane, which is a known neurotoxin, according to the Centers for Disease Control and Prevention.[77]

Organic (often lower-priced) alternatives to "natural" cereals

Berry Cereal

Ingredient	Percentage of ingredient samples found with residues (by USDA testing)		Human health effects of the pesticide
Organic: Nature's Path® Flax Plus Red Berry Crunch Price: $0.34/oz.			
Blueberries	Phosmet	Prohibited in Organics	
Strawberries	Captan	Prohibited in Organics	
"Natural": Peace Cereal®, Wild Berry Crisp Price: $0.36/oz.			
Blueberries	Phosmet	11.6%	Neurotoxin
Strawberries	Captan	55.1%	Carcinogen

Price difference: The all-organic option by Nature's Path is less expensive than conventional Peace Cereal® labeled "natural."

Almond Cereal

Organic: Cascadian Farm® Oats and Honey Granola Price: $0.24/oz.			
Wheat Grain	Malathion		Prohibited in Organics
Almonds	Chlorpyrifos		Prohibited in Organics
Almonds	Piperonyl butoxide		Prohibited in Organics
"Natural": Kashi® GoLean®, Honey Almond Flax Price: $0.28/oz.			
Wheat Grain	Malathion	63%	Neurotoxin
Almonds	Chlorpyrifos	35.7%	Neurotoxin
Almonds	Piperonyl butoxide	37.3%	Suspected Hormone Disruptor
Organic: Food for Life Ezekiel 4:9® Almond cereal with flax Price: $0.29/oz.			
Wheat Grain	Malathion		Prohibited in Organics
Almonds	Chlorpyrifos		Prohibited in Organics
Almonds	Piperonyl butoxide		Prohibited in Organics

Price difference: Cascadian Farm's® organic cereal is less expensive than Kashi's® non-organic, conventional cereal. The organic Food for Life cereal is only one cent more than the conventional Kashi® product.

Raisin Bran

Ingredient	Percentage of ingredient samples found with residues (by USDA testing)		Human health effects of the pesticide
"Natural": Mom's Best® Naturals, Raisin Bran Price: $0.11/oz.			
Wheat grain	Malathion	63%	Neurotoxin
Raisins	Phosmet	32.6%	Neurotoxin
Organic: Erewhon® Raisin Bran Price: $0.22/oz.			
Wheat grain	Malathion	Prohibited in Organics	
Raisins	Phosmet	Prohibited in Organics	
Organic: Nature's Path® Flax Plus Raisin Bran Price: $0.25/oz.			
Wheat grain	Malathion	Prohibited in Organics	
Raisins	Phosmet	Prohibited in Organics	
Organic: Cascadian Farm® Raisin Bran Price: $0.28/oz.			
Wheat grain	Malathion	Prohibited in Organics	
Raisins	Phosmet	Prohibited in Organics	
"Natural": Peace Cereal®, Raisin Bran Price: $0.29/oz.			
Wheat grain	Malathion	63%	Neurotoxin
Raisins	Phosmet	32.6%	Neurotoxin

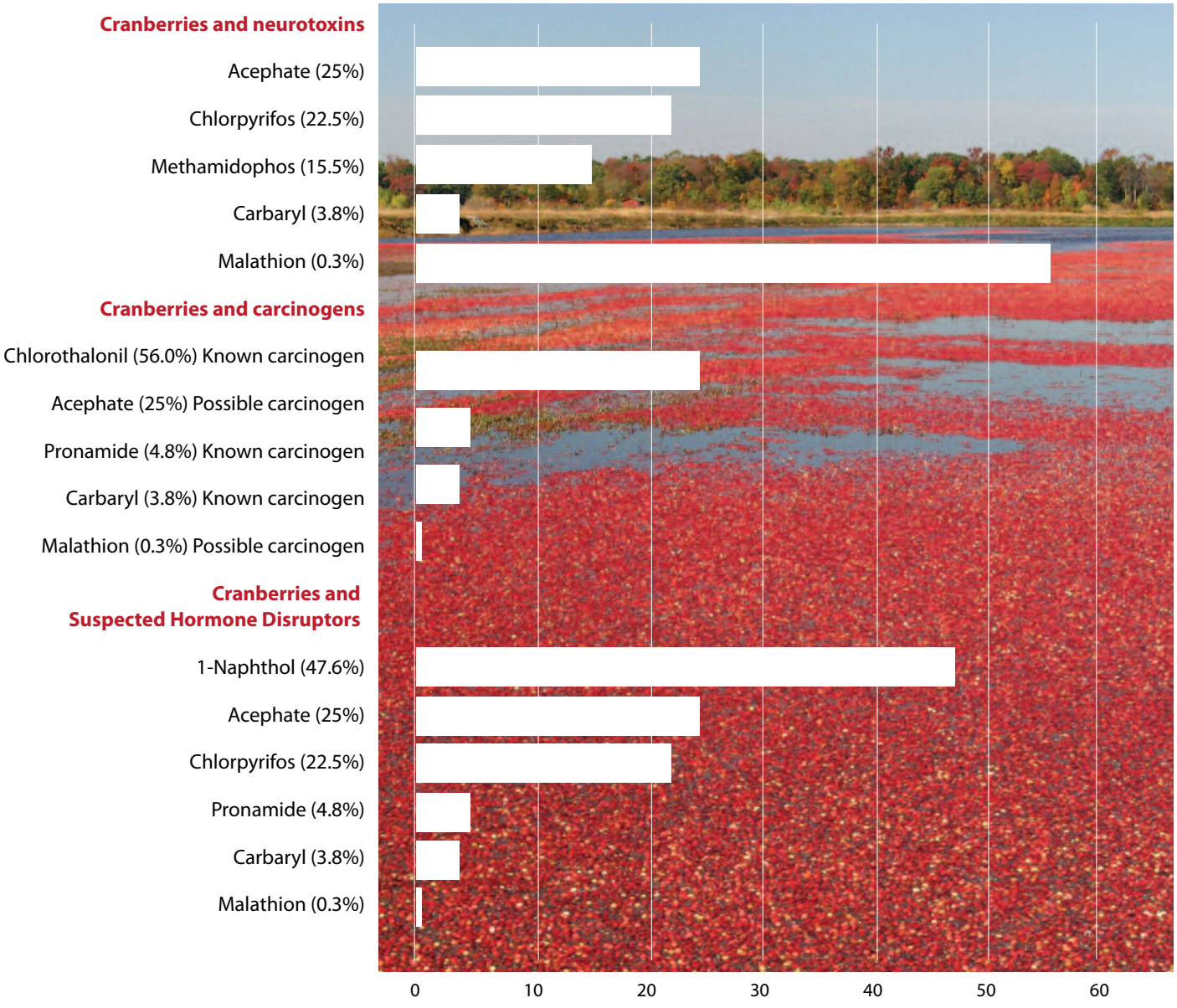
Price difference: While "natural" Mom's Best is less expensive than organic, the assurance that only organic can provide is worth the extra cost for organic. Peace Cereal® conventional raisin bran is more expensive than three organic options.

Cranberry Cereal

Prices for granola and cereal containing cranberries (listed from least to most expensive)

Brand	Organic status	Price per ounce
Dorset Cereals® Super Cranberry Almond (19 oz.)	Conventional	$0.26
New England Naturals® Organic Antioxidant Granola	Organic	$0.28
Nature's Path® Cranberry Ginger Optimum (12.5 oz.)	Organic	$0.29
Grandy Oats® Lowfat Cranberry Chew	Organic	$0.32
Bear Naked® Fruit and Nut Granola	Conventional	$0.36
Laughing Giraffe® Cranberry Orange Granola (7 oz.)	Organic	$0.99 ($$$)

In 2006, the USDA tested cranberries for pesticide residues. The results were astonishing: residues of various neurotoxins, multiple carcinogens and a half dozen suspected hormone disruptors were detected.



Despite its neurotoxicity, the FDA does not set a maximum residue level in soy foods for hexane. The FDA does not require that food manufacturers test for residues. The Cornucopia Institute tested samples of soy grits and soy flour for hexane and found residues of this neurotoxic chemical, 21 ppm in soy flour and 14 ppm in soy grits.

Organic law prohibits the use of hexane in organic food processing, but no such law or standard exists for "natural" foods. In fact, a comprehensive study by The Cornucopia Institute found that many veggie burgers and nutrition bars bearing a "natural" label contained hexane-extracted soy protein ingredients. (See our full report and online guide at www.cornucopia.org). In the cereal aisle, where products with soy ingredients are commonly found, the best guarantee to avoid hexane residues on foods is buying certified organic. ■

Several Bear Naked® and Kashi® products contain hexane-extracted soy protein. The "hexane bath" that the soybeans are immersed in consists of more than 50% n-hexane, which is a known neurotoxin, according to the Centers for Disease Control and Prevention.

Pesticides that can be used to produce ingredients in conventional, "natural" granola—all are prohibited in organics

Almond Propylene Oxide (probable carcinogen)

Cinnamon Ethylene Oxide (carcinogen)

Soy Hexane (neurotoxin)

Blueberry Phosmet (neurotoxin)

Raisin Propargite (known carcinogen)

Cranberry 1-Naphthol (suspected hormone disruptor)

Honey Coumaphos (neurotoxin)

Conclusion

To most consumers, genetically engineered ingredients, toxic pesticides, sewage sludge, fumigants and petrochemical solvents would never be considered "natural." Yet companies routinely label their foods as "natural" even when the ingredients were produced using these inputs, which are strictly prohibited by federal law in the production of foods bearing the organic seal.

When companies overcharge consumers for "natural" products, they take advantage of consumer interest in wholesome, healthy and pure foods at the expense of the farmers and manufacturers who are truly producing food in a more ecologically sound and healthy way. It means a consumer who could (and should) have bought a certified organic product walked away with a conventional product that offers none of the environmental and health benefits of an organic product.

When companies overcharge consumers for "natural" products, they take advantage of consumer interest in wholesome, healthy and pure foods at the expense of the farmers and manufacturers who are truly producing food in a more ecologically sound and healthy way.

The Cornucopia Institute calls on all companies currently marketing "natural" breakfast cereal to become organic as a service to their customers. (We believe that in the long run this will serve their shareholders as well.)

Polls have shown that consumers care about claims such as "no pesticides" and "no GMOs." The only way to assure this is by being certified organic. "Natural" claims may be profitable, but they are misleading and disingenuous unless the product is certified organic. We urge consumers and wholesale buyers to consult the Cereal and Granola Scorecard and make informed purchasing decisions, supporting companies that are 100% committed to organics whenever possible. ■

Brand Information	Commitment to Organics	Score	Wheat Rating
Rating 5 Brands in the 5-Grain category are trustworthy and committed to organics, produced by true heroes in the organic industry. All products under the brand name are certified organic, and the company markets exclusively organic products. These foods were produced without genetically engineered organisms, toxic pesticides, petrochemical solvents, and other inputs that are strictly prohibited in organics.			
[redacted] by Ambrosial Organic Inc./Independent Company	100% of the brand's cereal and granola products are certified organic	700	
[redacted] by Freeland Foods/Independent Company	100% of the brand's cereal and granola products are certified organic	700	
[redacted] by Grandy Oats/Independent Company	100% of the brand's cereal and granola products are certified organic	700	
[redacted] by Kaia Foods/Independent Company	100% of the brand's cereal and granola products are certified organic	700	
[redacted] by Laughing Giraffe Inc./Independent Company	100% of the brand's cereal and granola products are certified organic	700	
[redacted] by Lydia's Organics/Independent Company	100% of the brand's cereal and granola products are certified organic	700	
[redacted] by Nature's Path/Independent Company	100% of the brand's cereal and granola products are certified organic	700	
[redacted] by Tierra Farm/Independent Company	100% of the brand's cereal and granola products are certified organic	700	
[redacted] by Two Moms in the Raw/Independent Company	100% of the brand's cereal and granola products are certified organic	700	

The cereal and granola scorecard is designed to rate name-brands according to the brand's organic manufacturing/marketing approach and corporate owner's commitment to organic food production. One hundred percent organic brands that are owned by 100% organic companies are rated in the 5-grain category, while "natural" brands that are owned by companies engaged primarily in conventional food production are rated in the 1-grain category. Brands are also rated according to their commitment to avoiding genetically engineered ingredients, chemical solvents, and toxic farm chemicals.

We urge consumers and wholesale buyers to consult the Cereal and Granola Scorecard and make informed purchasing decisions, supporting companies that are 100% committed to organics whenever possible.

References

[1] Total U.S. food sales were virtually stagnant in 2010, growing less than 1% overall, yet the organic food industry grew 7.7%. Sales of organic fruits and vegetables grew the most, up 11.8% to account for nearly 12% of all U.S. fruit and vegetable sales. Organic dairy, the second-largest category, grew 9% and comprised nearly 6% of the U.S. dairy market. Organic Trade Association (2011), "Industry Statistics and Projected Growth." Retrieved August 3, 2011, from http://www.ota.com/organic/mt/business.html.

[2] The only exception is meat and poultry, for which a USDA standard exists, prohibiting artificial ingredients and requiring that the food be unprocessed.

[3] In The Hain Celestial Group's Corporate Social Responsibility Report's summary, CEO Irwin Simon writes that "we have never added artificial ingredients to our products labeled natural, as many competitive products carrying natural claims often do. The use of the word 'natural' is not fully regulated in the United States as well as many other countries in which we sell our brands, and this can cause consumer confusion. Our natural products are minimally processed and do not contain artificial ingredients, many of which have been reported to be harmful."

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[14] Kraft Foods 2010 annual report, available online at http://www.kraftfoodscompany.com/SiteCollectionDocuments/pdf/KraftFoods_10K_20110228.pdf

[15] In 2004 Latimer Group Limited, a company incorporated by Lion Capital, acquired all of the issued share capital of Weetabix Limited. It now forms part of the group of branded companies in the Lion portfolio. Retrieved March 3, 2011, from http://www.weetabix.co.uk/about-us/our-story and http://www.weetabix.co.uk/latimer-group.

[16] This was found to be the case in a SPINS report from 2010, which found that organics average a 20% price premium over natural products in natural supermarkets. In conventional food, drug and mass merchandiser markets, organics are at a 10% price premium to natural products. As quoted in Canada Organic Trade Assocation, August 2010, "Consumer confusion about the difference: 'natural' and 'organic' product claims."

[17] Wholesale prices in UNFI catalog, Greenwood, January-April 2011.

[18] Based on retail prices in WFM in Bedford, Mass.

[19] Grandy Oats wholesale price in the UNFI catalog, January-April 2011, is $0.32 per ounce; Bear Naked's wholesale price in the same catalog is $0.36 per ounce.

[20] United States Department of Agriculture, Agricultural Marketing Service: National Organic Feedstuffs (biweekly), May 19, 2011.

[21] In November 2008, the USDA's National Organic Feedstuffs biweekly reported "light demand and moderate offerings" and mentioned that the "economy continues to be a major factor in the organic market."

[22] National Oceanic and Atmospheric Administration, "NOAA Predicts Largest Gulf of Mexico 'Dead Zone' on Record," *Science Daily*, July 16, 2008. (Available online at www.sciencedaily.com/releases/2008/07/080715114149.htm.)

[23] Geoffrey Calvert et al. (2008), "Acute Pesticide Poisoning Among Agricultural Workers in the United States, 1998–2005," *American Journal of Industrial Medicine*, 51:883–898.
Calvert et al. found 3,271 cases of acute pesticide poisoning occurring between 1998 and 2005.

[24] Agricultural Health Study, National Cancer Institute, the National Institute of Environmental Health Sciences, and the Environmental Protection Agency. (Available online at http://www.cancer.gov/cancertopics/factsheet/Risk/ahs.)

[25] Agricultural Health Study, National Cancer Institute, the National Institute of Environmental Health Sciences, and the Environmental Protection Agency. (Available online at http://www.cancer.gov/cancertopics/factsheet/Risk/ahs.)

[26] D.M. Schreinemachers (2003), "Birth Malformations and Other Adverse Perinatal Outcomes in Four U.S. Wheat-Producing States," *Environmental Health Perspectives* 111:1259-1264.

[27] Rodale Institute. Available online at http://www.rodale.com/tracking-carbon?page=0%2C1

[28] International Assessment of Agricultural Knowledge, Science, and Technology for Development, Executive Summary of the Synthesis Report, Johannesburg, South Africa: IAAKST, April 7–11, 2008. (Available online at www.agassessment.org/docs/SR_Exec_Sum_280508_English.htm.)

[29] 7CFR205.105

[30] United States Geological Service. "Technical Announcement: Widely Used Herbicide Commonly Found in Rain and Streams in the Mississippi River Basin." August 29, 2011 (Available online at http://www.usgs.gov/newsroom/article.asp?ID=2909)

[31] NOP regulations expressly prohibit the use of GMOs in organic production and handling, defining it as an "excluded method" (7 CFR 205.105). Excluded methods include: a variety of methods to genetically modify organisms or influence their growth and development by means that are not possible under natural conditions or processes and are not considered compatible with organic production. Such methods include cell fusion, microencapsulation, macroencapsulation, and recombinant DNA technology (including gene deletion, gene doubling, introducing a foreign gene, and changing the positions of genes when achieved by recombinant DNA technology). Such methods do not include the use of traditional breeding, conjugation, fermentation, hybridization, in vitro fertilization, or tissue culture. (7 CFR § 205.2-Terms defined)

[32] The Hartman Group (2010), "Beyond Natural and Organic." As quoted in: Canada Organic Trade Assocation (August 2010), "Consumer Confusion About the Difference: 'Natural' and 'Organic' Product Claims."

[33] Context Marketing (2009), "Beyond Organic: How Evolving

Consumer Concerns Influence Food Purchases." (Available online at www.contextmarketing.com.)

[34] Mother's® Bumpers®: 28% GE corn; Barbara's Bakery® Puffins®: 55% GE corn; Kix® Corn Puffs: 56% GE corn; 365 Everyday Value® Corn Flakes: 57% GE corn; Nutritious Living® Hi-Lo®: 85% GE soy; Kashi® GoLean®: 100% GE soy.

[35] Annie's Homegrown® Cinnamon Bunny O's and Peace Cereal Apple Cinnamon cereal contained less than 0.05% GE corn.

[36] Based on test results by an accredited GMO testing laboratory.

[37] The Organic and Non-GMO Report (February 2009), "Scientist's book casts skeptical eye on GM foods." (Available online at http://www.non-gmoreport.com/articles/feb09/scientist_book_on_gm_foods.php.)

[38] The Organic and Non-GMO Report (January 2009),"Scientist: safety testing of GM foods is 'woefully inadequate.'" (Available online at http://www.non-gmoreport.com/articles/dec08/gm_food_safey_testing_inadequate.php.)

[39] Institute of Responsible Technology, "Health Risks." (Available online at http://www.responsibletechnology.org/health-risks.)

[40] J.L. Domingo, and Bordonaba, J.G. (2011), "A Literature Review on the Safety Assessment of Genetically Modified Plants." *Environment International* 37(4): 734-742.

[41] A. Aris, and LeBlanc, S. (2011), "Maternal and Fetal Exposure to Pesticides Associated to Genetically Modified Foods in Eastern Townships of Quebec, Canada." *Reproductive Toxicology* (in press).

[42] J.S. de Vendômois, Roullier, F., et al. (2009), "A Comparison of the Effects of Three GM Corn Varieties on Mammalian Health, *International Journal of Biological Sciences* 5:706-726. (Available online at http://www.biolsci.org/v05p0706.htm.)

[43] A. Velimirov and Binter, C. (2008), "Biological Effects of Transgenic Maize NK603 and MON801 Fed in Long-term Reproduction Studies in Mice." *Bundesministerium fur Gesundheit Familie und Jugend.*

[44] A. Finamore, Roselli, M. et al. (2008), "Intestinal and Peripheral Immune Response to MON 810 Maize Ingestion in Weaning and Old Mice," *Journal of Agricultural and Food Chemistry* 56 (23), 11533-1153.

[45] Daily Sustainable Business News (May 27, 2011), "Consumers Desire for 'Natural' Nutrition Cuts to the Core, says NMI."

[46] Context Marketing (2009), "Beyond Organic: How Evolving Consumer Concerns Influence Food Purchases." (Available online at www.contextmarketing.com.)

[47] United States Department of Agriculture. National Agricultural Statistics Service, http://www.pestmanagement.info/nass/act_dsp_statcs3_crop.cfm.

[48] C. Lu, Knutson, D.E. et al. (2001), "Biological Monitoring Survey of Organophosphorus Pesticide Exposure Among Preschool Children in the Seattle Metropolitan Area," *Environmental Health Perspectives* 109:299–303.

[49] C. Curl, Fenske, R., and Elgethun, K. (2003), "Organophosphorus Pesticide Exposure of Urban and Suburban Preschool Children with Organic and Conventional Diets," Environmental Health Perspectives 111(3): 377-382.

[50] C. Lu, Toepel, K. et al. (2006), "Organic Diets Significantly Lower Children's Dietary Exposure to Organophosphorus Pesticides," Environmental Health Perspectives 114 (2): 260-263.

[51] V.A. Rauh, Garfinkel, R. et al. (2006), "Impact of Prenatal Chlorpyrifos Exposure on Neurodevelopment in the First 3 Years of Life Among Inner-City Children,." *Pediatrics* 118(6). (Available online at: www.pediatrics.org/ cgi/content/full/118/6/e1845.) See also B. Eskenazi, B., Marks, A.R. et al. (2007), "Organophosphate Pesticide Exposure and Neurodevelopment in Young Mexican-American Children," *Environmental Health Perspectives* 115(5):792–798.

[52] P. Grandjean, Harari, R. et al. (2006), "Pesticide Exposure and Stunting as Independent Predictors of Neurobehavioral Deficits in Ecuadorian School Children." *Pediatrics* 117(3). (Available online at www. pediatrics.org/cgi/content/full/117/3/e546.)

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[55] M.F. Bouchard, Bellinger, D.C. et al. (2010), "Attention Deficit/Hyperactivity Disorder and Urinary Metabolites of Organophosphate Pesticides," Pediatrics 125:e1270–e1277.

[56] Based on USDA Pesticide Data Program results.

[57] Prices based on The Wedge, a food co-op in Minneapolis, Minn.

[58] Prices based on Whole Foods Market in Bedford, Mass.

[59] Pesticide Action Network of North America. Database available online at www.whatsonmyfood.org.

[60] Pesticide Action Network of North America. Database available online at www.whatsonmyfood.org.

[61] The highest residue found was 108 ug in 3.5 oz. The Acute PAD for children is 20 ug. The Acute PAD is the amount that a sub-population, typically containing children or women of child-bearing age, is expected to be able to tolerate.

[62] Dow Agrosciences, 02/08, Container Label and Applicator Manual for ProFume Gas Fumigant.

[63] Dow Agrosciences, 02/08, Container Label and Applicator Manual for ProFume Gas Fumigant, page 56.

[64] Environmental Protection Agency. RED Sulfuryl Fluoride. Available http://www.epa.gov/oppsrrd1/REDs/old_reds/sulfuryl_fluoride.pdf

[65] Groups include the Fluoride Action Network, Beyond Pesticides and the Environmental Working Group.

[66] Federal Register Volume 76, No. 12, Pages 3422-3449. FR Docket No. 2011-917. January 19, 2011.

[67] Fluoride Action Network, "The Campaign Against Sulfuryl Fluoride." (Available online at http://www.fluoridealert.org/sf/index.html.)

[68] University of California – Irvine (January 30, 2009). "Termite Insecticide Found to Be Potent Greenhouse Gas," *ScienceDaily.* (Available online at http://www.sciencedaily.com /releases/2009/01/090121144059.htm.)

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[70] Environmental Protection Agency. Propylene Oxide – Hazard Summary. Available online at http://www.epa.gov/ttnatw01/hlthef/ prop-oxi.html

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[74] F. Wesley, Rourke, B., and Darbishire, O. (1965), "The Formation of Persistent Toxic Chlorohydrins in Foodstuffs by Fumigation with Ethylene Oxide and with Propylene Oxide," *Journal of Food Science 30, 1037.*

[75] Ibid.

[76] U.S. Environmental Protection Agency, *Technology Transfer Network Air Toxics Web Site: About Air Toxics*. (Available online at http://www.epa.gov/ttn/atw/allabout.html.)

[77] Centers for Disease Control and Prevention. (Available online at http://www.cdc.gov/niosh/topics/organsolv/.)

Cereal/Granola Scorecard Rating Assumptions

Organic Status by Brand (in cereal and granola)

100:	100% of product line is organic
01-99:	Score is calculated as a percentage of product line that is certified organic, 70% organic, contains organic ingredients and conventional
Total:	1 x percentage of product line that is organic + 0.7 x percentage of product line that is "made with organic ingredients" (70% organic) + 0.25 x percentage of product line that contains some organic ingredients + 0 x percentage of product line that is conventional
0:	No organic offerings in product line

Organic Status —Corporate Owner

100:	100% of company's products are certified organic
85:	70-99% of company's products are certified organic or "made with organic"
55:	40 – 69% of company's products are certified organic or "made with organic"
25:	10 – 39% of company's products are certified organic or "made with organic"; 100% of products contain organic ingredients
5:	1 - 9% of company's products are certified organic or "made with organic"
0:	0% of company's products are certified organic or "made with organic"

GMO Policy by Brand (in cereal and granola)

100:	100% cereal and granola products are certified organic (genetic engineering is prohibited in organics by federal organic standards) and the company reports it performs additional testing for GMO contamination
100:	Company states that no GMOs are used, and granola/cereal does not contain soy, corn, cotton, rice or canola ingredients

90: 100% of cereal and granola products are certified organic (genetic engineering is prohibited in organics by federal organic standards)

75: Non-organic cereal and granola products are represented as made without GMOs and reportedly tested for GMO contamination

50: Company produces some organic granola and cereal products and states that conventional products are produced without GMOs (without verification or testing)

25: No organic products, company states that no GMO ingredients are used in conventional cereal and granola products (no verification or testing)

10: Some organic products (without GMOs) and conventional products produced with the use of GMOs (either through corporate policy or as confirmed through testing by an accredited laboratory)

0: No policy to avoid GMOs in conventional ("natural") products or as confirmed through testing by an accredited laboratory

GMO Policy — Corporate Owner

100: 100% cereal and granola products are certified organic (genetic engineering is prohibited in organics by federal organic standards), and the company reports it performs additional testing for GMO contamination

100: Company states that no GMOs are used, and does not purchase soy, corn, cotton, rice or canola ingredients

90: 100% of company's products are certified organic (genetic engineering is prohibited in organics by federal organic standards)

75: Company states that no GMOs are used in conventional products and verifies that all non-organic products are free from GMOs

50: Company states that no GMOs are used in conventional products, tests some products for GMO contamination

25: Company states that no GMOs are used in conventional products, no verification

0: Company has no policy to avoid GMOs in conventional products or GMOs were detected in conventional products through testing performed by an accredited laboratory

Hexane Use by Brand (in cereal and granola)

100: 100% organic offerings (hexane use is prohibited by federal standards and verified)

100: Products do not contain ingredients that could be processed with hexane.

75: No hexane is reportedly used (these claims cannot be verified in non-organic products)

0: Hexane is likely used to process some ingredients, such as oils and soy protein and other extracted soy ingredients (because of expense virtually no conventional commodities/ingredients of this nature are extracted without the use of chemical solvents like hexane)

Agrichemical Use by Brand (in cereal and granola)

100: 100% of product line is organic and therefore produced without the standard toxic and potentially dangerous agrichemicals

01-99: Score is calculated as a percentage of product line that is certified organic, 70% organic, contains organic ingredients and conventional. Organic ingredients are produced and processed without the use of potentially dangerous and toxic inputs

Total: 1 x percentage of product line that is organic
+ 0.7 x percentage of product line that is "made with organic ingredients" (70% organic)
+ 0.5 x percentage of product line that contains some organic ingredients
+ 0 x percentage of product line that is conventional

0: No organic offerings in product line

Agrichemical Use by Corporate Owner

100: 100% of company's products are certified organic

85: 70-99% of company's products are certified organic or "made with organic"

55: 40 – 69% of company's products are certified organic or "made with organic"

25: 10 – 39% of company's products are certified organic or "made with organic"

5: 1 - 9% of company's products are certified organic or "made with organic"

0: 0% of company's products are certified organic or "made with organic"

Genetically Engineered Ingredients – Testing Protocol

The Cornucopia Institute arranged for a third party to oversee pulling samples from store shelves, label them in a blinded manner, and ship them to the testing laboratory. The samples were sent to a leading GMO testing laboratory accredited to ISO 17025, the international standard for laboratory accreditation. The genetically modified organism (GMO) tests used fall within the scope of the laboratory's accreditation.

One type of GMO test was performed for each product. Each sample was tested for its corn-derived ingredients or its soy-derived ingredients, as shown in the table below. It should be noted that of the products tested for genetically modified (GM) soy, some may have also contained genetically modified corn. Also, some products could have contained ingredients derived from other GM crops, such as GM sugar beets, but we tested only for GM corn and GM soy.

The results were as follows:

Brand	Product tested	GMO test performed	Ingredients tested	Percent GMO of ingredients tested
Bear Naked	Peak Protein Granola	Mon 40-3-2	Soy	less than 0.9%*
Nature's Path	Corn Flakes	35S Promoter	Corn	less than 0.9%*
Peace Cereal	Apple Cinnamon	35S Promoter	Corn	less than 0.9%*
Annie's Homegrown	Cinnabunnies	35S Promoter	Corn	less than 0.9%*
Mother's	Bumpers	35S Promoter	Corn	28%
Barbara's Bakery	Puffins	35S Promoter	Corn	55%
Kix	Corn Puffs	35S Promoter	Corn	56%
365	Corn Flakes	35S Promoter	Corn	57%
Nutritious Living	Hi-Lo	Mon 40-3-2	Soy	85%
Kashi	Go Lean	Mon 40-3-2	Soy	100%

* European Union regulations require "genetically modified" labeling if a food/feed product contains an ingredient which is greater than 0.9% GMO.